NMCP COVID-19 Literature Report #76: Friday, 10 September 2021

Prepared By: Tracy C. Shields, MSIS, AHIP (Ms.; she/her) <tracy.c.shields2.civ@mail.mil>
Naval Medical Center Portsmouth; Library Services, Reference Medical Librarian

Purpose: These reports, published every other week on Fridays, are curated collections of current research, evidence reviews, special reports, grey literature, and news regarding the COVID-19 pandemic that may be of interest to medical providers, leadership, and decision makers.

All reports are available online at https://nmcp.libguides.com/covidreport. Access is private; you will need to use the direct link or bookmark the URL.

Disclaimer: I am not a medical professional. This document is current as of the date noted above. While I make every effort to find and summarize available data, I cannot cover everything in the literature on COVID-19. Please feel free to reach out with questions, suggestions for future topics, or any other feedback.

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The Big Picture

News in Brief

"Americans are losing sight of the pandemic endgame — Entirely eliminating infections is an unrealistic goal, but successful vaccines will avoid the worst outcomes" (Atlantic).

In Memoriam: 9/11

Opinion: "Covid-19 trauma complicates the 9/11 'anniversary effect'" (STAT).

"After 9/11, the U.S. got almost everything wrong — A mission to rid the world of 'terror' and 'evil' led America in tragic directions" (Defense One).

"None of my students remember 9/11: For coming generations of students, September 11 is history rather than memory. How does that affect how they learn about it?" (Atlantic).

"20 years later, 2 more 9/11 victims are identified using new technology" (NPR).

Preparedness and Pandemic Costs

"Report: 20 years after 9/11, America still not fully prepared for public health emergencies" (HPN; see also: Trust for America's Health report [pdf]).

"The White House wants $65 billion for an 'Apollo'-style pandemic preparedness program" (STAT; see also: fact sheet from White House).

The pandemic has cost the Pentagon at least $13.6b and counting — And that figure could rise as the Defense Department starts mandatory COVID-19 testing for unvaccinated civilian workers" (Defense One).

Mortality

"Pandemic will push U.S. mortality up through 2023, new government report predicts — The impact of the coronavirus pandemic on Americans' health and lives will not end anytime soon, Medicare and Social Security trustees say" (WP; see also: SSA 2021 report summary).

Data

"Florida changed its COVID-19 data, creating an 'artificial decline' in recent deaths" (Miami Herald).

"Millions of people are missing from CDC COVID data as states fail to report cases" (NPR).

Weather and Climate Change

"COVID has worsened the impact of hurricane Ida, creating a 'major disaster' for Louisiana — 'It's a major crisis,' said an intensive care doctor at a New Orleans hospital. 'It's about to worsen.'" (BFN).

"Weather disasters have become 5 times as common, thanks in part to climate change" (NPR; see also: UN's WMO report).

A group of journal editors has published an editorial bringing awareness of the climate emergency and its impact on health: "Call for Emergency Action to Limit Global Temperature Increases, Restore Biodiversity, and Protect Health" (NEJM; see also: list of authors and signatories at BMJ).

Long read: "Nearly 1 in 3 Americans experienced a weather disaster this summer. Climate change has turbocharged severe storms, fires, hurricanes, coastal storms and floods — threatening millions" (WP; includes listening option).

Special Reports and Other Resources

USDA: Household Food Security in the United States in 2020 (September 2021)

> "Most U.S. households have consistent, dependable access to enough food for active, healthy living—they are food secure. However, some households experience food insecurity at times during the year, meaning their access to adequate food is limited by a lack of money and other resources. USDA's food and nutrition assistance programs aim to increase food security by providing low-income households access to food for a healthful diet, as well as nutrition education. USDA monitors the extent and severity of food insecurity in U.S. households through an annual, nationally representative survey sponsored and analyzed by USDA's Economic Research Service (ERS). This report presents statistics from the survey that cover household food security, food expenditures, and use of Federal nutrition assistance programs in 2020."

> For more context on food insecurity and the pandemic, see the NMCP COVID-19 Report #9: Tuesday, 28 April 2020

NAM: Crisis Standards of Care and COVID-19: What Did We Learn? How Do We Ensure Equity? What Should We Do? (30 August 2021)

> "COVID-19 has fundamentally challenged the delivery of health care services across the world, forcing difficult choices on health professionals and laying bare many preexisting health, medical, and public health sector frailties. Extreme shortages of key resources and worries that patients would not receive the care they needed were frequent features of the response beginning in the spring of 2020 and were recurrent during subsequent regional and national peaks.

> Crisis standards of care (CSC) occur when the degree of resource shortage requires decisions that place a patient or provider at risk of a poor outcome. These situations arose in most jurisdictions and required a systematic, coordinated response [1]. Often, state and

health care CSC plans were used or revised, or they did not apply to the situations encountered. In several critical instances, potentially useful CSC plans were ignored or actively subverted. The authors of this paper describe some of the successes and shortfalls of CSC principles and practices during COVID-19 and identify issues to be addressed for future events.

This paper focuses on hospital application of CSC, though emergency medical services (EMS) experienced similar issues. EMS and health care planning and response must be linked to ensure consistency of expectations as well as optimal patient distribution and redistribution. Both EMS and hospital resources and staff require stewardship during disasters, particularly ones that are protracted in nature. Recognition of clinical care interdependency (long-term care, EMS, hospitals, outpatient care) in planning and response is critical for avoiding CSC conditions and improving consistency across the spectrum of care as well as across any given geographic region."

See also: Crisis Standards of Care for the COVID-19 Pandemic resources page

Journal Articles

Nature: Burden and characteristics of COVID-19 in the United States during 2020 (26 August 2021)

"The COVID-19 pandemic disrupted health systems and economies throughout the world during 2020 and was particularly devastating for the United States, which experienced the highest numbers of reported cases and deaths during 2020. Many of the epidemiological features responsible for observed rates of morbidity and mortality have been reported; however, the overall burden and characteristics of COVID-19 in the United States have not been comprehensively quantified. Here we use a data-driven model-inference approach to simulate the pandemic at county-scale in the United States during 2020 and estimate critical, time-varying epidemiological properties underpinning the dynamics of the virus. The pandemic in the US during 2020 was characterized by national ascertainment rates that increased from 11.3% (95% credible interval (CI):8.3 – 15.9%) during March to 24.5% (18.6 – 32.3%) during December. Population susceptibility at year's end was 69.0% (63.6 – 75.4%), indicating that roughly one third of the US population had been infected. Community infectious rates, the percentage of people harbouring a contagious infection, rose above 0.8% (0.6 – 1.0%) before the end of the year, and were as high as 2.4% in some major metropolitan areas. In contrast, the infection fatality rate fell to 0.3% by year's end."

Disaster Med Public Health Prep: Oxygen and Ventilator Logistics during California's COVID-19 Surge-When Oxygen becomes a Scarce Resource (16 August 2021)

"The state of California, in the United States of America, has a population of nearly 40 million people and is the 5th largest economy in the world. During the COVID-19 (Coronavirus Disease) pandemic in 2020-2021, the state experienced a medical surge that stressed its sophisticated healthcare and public health system. During this period, ventilators, oxygen, and other equipment necessary for providing ventilatory support became a scarce resource in many healthcare settings. When demand overwhelms supply, creative solutions are required at all levels of disaster management and healthcare. This paper describes the disaster response by the state of California to mitigate the emergency demands for oxygen delivery resources."

SARS-CoV-2 Virus and Variants

News in Brief

"Has Delta peaked? We investigate Covid's mysterious two-month cycle" (NYT).

"WHO warns new mu coronavirus variant could be more vaccine resistant" (Hill; see also: WHO weekly update).

"How the Delta variant's remarkable ability to replicate threw new twists into the Covid-19 pandemic" (STAT).

Antibodies and Immunity

"Rogue antibodies involved in almost one-fifth of COVID deaths — The self-targeting antibodies attack type 1 interferons that play a key role in fighting infection" (Nature; see also: *Science Immunology* paper).

"A study by researchers from Tel Aviv conclude that natural immunity to SARS-CoV-2 infections is more robust against the Delta variant than two doses of the Pfizer-BioNTech vaccine BNT162b2" (ONT; see also: medRxiv preprint).

"New studies find evidence of 'superhuman' immunity to COVID-19 in some individuals" (NPR).

Origins

"US COVID origins report: researchers pleased with scientific approach — Intelligence investigation is inconclusive on virus's origins, but finds SARS-CoV-2 wasn't weaponized and is unlikely to have been engineered" (Nature).

Long Reads

"Inside Pfizer's labs, 'variant hunters' race to stay ahead of the pandemic's next twist" (STAT).

Journal Articles

Nature: [SARS-CoV-2 B.1.617.2 Delta variant replication and immune evasion](#) (06 September 2021)

"The SARS-CoV-2 B.1.617.2 (Delta) variant was first identified in the state of Maharashtra in late 2020 and spread throughout India, outcompeting pre-existing lineages including B.1.617.1 (Kappa) and B.1.1.7 (Alpha). In vitro, B.1.617.2 is 6-fold less sensitive to serum neutralising antibodies from recovered individuals, and 8-fold less sensitive to vaccine-elicited antibodies as compared to wild type (WT) Wuhan-1 bearing D614G. Serum neutralising titres against B.1.617.2 were lower in ChAdOx-1 versus BNT162b2 vaccinees. B.1.617.2 spike pseudotyped viruses exhibited compromised sensitivity to monoclonal antibodies against the receptor binding domain (RBD) and N- terminal domain (NTD). B.1.617.2 demonstrated higher replication efficiency in both airway organoid and human airway epithelial systems compared to B.1.1.7, associated with B.1.617.2 spike in a predominantly cleaved state compared to B.1.1.7. The B.1.617.2 spike protein was able to mediate highly efficient syncytium formation that was less sensitive to inhibition by neutralising antibody as compared to WT spike. Additionally we observed that B.1.617.2 had higher replication and spike mediated entry as compared to B.1.617.1, potentially explaining B.1.617.2 dominance. In an analysis of over 130 SARS-CoV-2 infected healthcare workers across three centres in India during a period of mixed lineage circulation, we observed reduced ChAdOx-1 vaccine effectiveness against B.1.617.2 relative to non-B.1.617.2, with the caveat of possible residual confounding. Compromised vaccine efficacy against the highly fit and immune evasive B.1.617.2 Delta variant warrants continued infection control measures in the post-vaccination era."

MMWR: [Multiple Variants of SARS-CoV-2 in a University Outbreak After Spring Break — Chicago, Illinois, March–May 2021](#) (03 September 2021)

"What is already known about this topic? SARS-CoV-2 transmission on college and university campuses can occur when unvaccinated students return to campus after travel or attend social gatherings.

What is added by this report? After spring break 2021, COVID-19 cases increased rapidly at a Chicago university despite mitigation measures. Interviews indicated that the majority of cases occurred in unvaccinated persons with a history of recent travel. Sequencing corroborated multiple introductions to campus and demonstrated that even a single importation can result in many cases.

What are the implications for public health practice? To mitigate SARS-CoV-2 transmission, colleges and universities can encourage COVID-19 vaccination; discourage unvaccinated students from traveling, including during university breaks; implement serial screening after university breaks; test based on community transmission; and encourage masking."

Clin Infect Dis: [Rapid emergence and spread of SARS-CoV-2 gamma (P.1) variant in Haiti](#) (02 September 2021)

"After an initial wave of COVID-19 in Haiti in summer 2020 (primarily lineage B.1), seropositivity for anti-SARS-CoV-2 IgG was ~40%. Variant P.1 (gamma) was introduced in February 2021, with an initially limited introduction followed by exponential local dissemination within this unvaccinated population with prior exposure to earlier SARS-CoV-2 lineages."

Disaster Med Public Health Prep: [A comparative study on virology, epidemiology, and clinical features of SARS and COVID-19](#) (31 August 2021)

"In December 2019, an outbreak of an unknown cause of pneumonia [later named coronavirus disease 2019 (COVID-19)] occurred in Wuhan, China. This was found to be attributed to a novel coronavirus of zoonotic origin, severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2; previously named 2019 novel coronavirus or 2019-nCoV). The SARS-CoV-2, a new type of highly pathogenic human coronavirus related to severe acute respiratory syndrome coronavirus (SARS-CoV), spread rapidly worldwide and caused 53,164,803 confirmed infections, including 1,300,576 deaths, by November 13, 2020 (globally, 206,196,367 cases and 4,345,424 deaths as of August 13, 2021). SARS-CoV-2 and SARS-CoV vary in their specific characteristics, regarding epidemics and pathogenesis. This article focuses on the comparison of the virology, epidemiology, and clinical features of SARS-CoV and SARS-CoV-2 to reveal their common and distinct properties, to provide an up-to-date resource for the development of advanced systems and strategies to monitor and control future epidemics of highly pathogenic human coronaviruses."

Clin Infect Dis: [Estimating the latent period of coronavirus disease 2019 (COVID-19)](#) (28 August 2021)

"Using detailed exposure information on COVID-19 cases, we estimated the mean latent period to be 5.5 days (95% confidence interval: 5.1-5.9 days), shorter than the mean incubation period (6.9 days). Laboratory testing may allow shorter quarantines since 95% of COVID-19 cases shed virus within 10.6 days (95%CI: 9.6-11.6) of infection."

Lancet Infect Dis: [Hospital admission and emergency care attendance risk for SARS-CoV-2 delta (B.1.617.2) compared with alpha (B.1.1.7) variants of concern: a cohort study](#) (27 August 2021)

"Background: The SARS-CoV-2 delta (B.1.617.2) variant was first detected in England in March, 2021. It has since rapidly become the predominant lineage, owing to high transmissibility. It is suspected that the delta variant is associated with more severe disease than the previously dominant alpha (B.1.1.7) variant. We aimed to characterise the severity of the delta variant compared with the alpha variant by determining the relative risk of hospital attendance outcomes.

Methods: This cohort study was done among all patients with COVID-19 in England between March 29 and May 23, 2021, who were identified as being infected with either the alpha or delta SARS-CoV-2 variant through whole-genome sequencing. Individual-level data on these patients were linked to routine health-care datasets on vaccination, emergency care attendance, hospital admission, and mortality (data from Public Health England's Second Generation Surveillance System and COVID-19-associated deaths dataset; the National Immunisation Management System; and NHS Digital Secondary Uses Services and Emergency Care Data Set). The risk for hospital admission and emergency care attendance were compared between patients with sequencing-confirmed delta and alpha variants for the whole cohort and by vaccination status subgroups. Stratified Cox regression was used to adjust for age, sex, ethnicity, deprivation, recent international travel, area of residence, calendar week, and vaccination status.

Findings: Individual-level data on 43 338 COVID-19-positive patients (8682 with the delta variant, 34 656 with the alpha variant; median age 31 years [IQR 17-43]) were included in our analysis. 196 (2·3%) patients with the delta variant versus 764 (2·2%) patients with the alpha variant were admitted to hospital within 14 days after the specimen was taken (adjusted hazard ratio [HR] 2·26 [95% CI 1·32-3·89]). 498 (5·7%) patients with the delta variant versus 1448 (4·2%) patients with the alpha variant were admitted to hospital or attended emergency care within 14 days (adjusted HR 1·45 [1·08-1·95]). Most patients were unvaccinated (32 078 [74·0%] across both groups). The HRs for vaccinated patients with the delta variant versus the alpha variant (adjusted HR for hospital admission 1·94 [95% CI 0·47-8·05] and for hospital admission or emergency care attendance 1·58 [0·69-3·61]) were similar to the HRs for unvaccinated patients (2·32 [1·29-4·16] and 1·43 [1·04-1·97]; p=0·82 for both) but the precision for the vaccinated subgroup was low.

Interpretation: This large national study found a higher hospital admission or emergency care attendance risk for patients with COVID-19 infected with the delta variant compared with the alpha variant. Results suggest that outbreaks of the delta variant in unvaccinated populations might lead to a greater burden on health-care services than the alpha variant."

COVID-19 Vaccines

News in Brief

"We're asking the impossible of vaccines — Complete protection against infection has long been hailed as the holy grail of vaccination. It might simply be unachievable" ([Atlantic](#)).

"Don't worry, your immune responses are supposed to wane — Reports of vaccines' decline have been greatly overstated" ([Atlantic](#)).

"'Vaccine snob' travelers head to Guam for sun, sea — and shots" ([WP](#)).

Boosters

The FDA's Vaccines and Related Biological Products Advisory Committee will hold a meeting on 17 September to discuss booster shots for the Pfizer vaccine ([FDA](#)).

The WHO wants a moratorium on boosters until the end of the year ([AP](#)).

"The debate over Covid-19 vaccine boosters, what to call them, and whether they're needed" ([STAT](#)).

"Israel's COVID-19 boosters are preventing infections, new studies suggest — Protection increases in the weeks following a third dose, but it's unclear how long the effect will last" ([Science](#)).

Adverse Effects / Events

The European Medicines Agency is reviewing cases of multisystem inflammatory syndrome following the Pfizer vaccine ([EMA](#)).

"How the risk of side effects could change with Covid-19 vaccine boosters" ([STAT](#)).

Development

"India's DNA COVID vaccine is a world first – more are coming. The ZyCoV-D vaccine heralds a wave of DNA vaccines for various diseases that are undergoing clinical trials around the world" ([Nature](#)).

"[Coalition for Epidemic Preparedness Innovations] warns of major hurdle to developing new Covid-19 vaccines and studying best booster approaches" ([STAT](#); see also: [letter published in Nature](#)).

Long Reads

"Humanitarians push to vaccinate in conflict zones — Pandemic ceasefires offer an opportunity to expand vaccination efforts, experts say. But negotiation is tricky" ([Undark](#)).

Upcoming Events

WHAT: [Developing the Oxford AstraZeneca COVID-19 vaccine: Elizabeth Blackwell Annual Public Lecture 2021 with Professor Dame Sarah Gilbert](#)
               – free event

WHEN: Wednesday, 06 October 2021 0800-0900 ET

ABOUT: "Dame Sarah Gilbert is Professor of Vaccinology in the Nuffield Department of Medicine at the University of Oxford, and is the Oxford Project Leader for ChAdOx1 nCoV-19, the leading UK coronavirus vaccine.

In this talk, Dame Sarah will take us on a journey from the moment she first heard about a serious new illness affecting people in China, to her team designing a successful COVID-19 vaccine which would save the lives of millions of people. You will hear the behind-the-scenes story of how the AstraZeneca COVID-19 vaccine - both cheaper and easier to distribute than some other vaccines - was developed and approved at a pace, while the public waited eagerly for science to find a way out of this major global health challenge.

She will look at the reasons some people are hesitant to get vaccinated and discuss how people's trust in science can be affected by how science is communicated. What can we learn from this pandemic and the ways it could help us plan for future health crises, as we look towards a post-COVID world?"

REGISTER: https://www.eventbrite.co.uk/e/dame-sarah-gilbert-developing-the-oxford-astrazeneca-covid-19-vaccine-registration-162416757895

Special Reports and Other Resources

RAND: Identifying Strategies to Boost COVID-19 Vaccine Acceptance in the United States (09 September 2021)

"This report presents the results of an evaluation of the root causes of COVID-19 vaccine hesitancy to inform strategies to boost vaccine acceptance among vaccine-hesitant populations in the United States. The authors conducted a literature review of the causes of vaccine hesitancy and vaccine acceptance; focus groups with patients, pre-hospital first responders, and hospital-based health care providers; a social media platform sentiment analysis to review attitudes regarding the COVID-19 vaccine; and a roundtable discussion with experts on vaccine hesitancy.

Drawing on this mixed-methods analysis, the authors recommend strategies to help boost COVID-19 vaccine acceptance in the United States, grouping them according to three overall goals: boosting confidence in the safety and effectiveness of the COVID-19 vaccines, combating complacency about the pandemic, and increasing the convenience of getting vaccinated. The authors emphasize that combating misinformation about the COVID-19 vaccine is key to achieving these goals. These recommendations can inform the development of a toolkit of strategies to reach herd immunity and end the pandemic."

Journal Articles

Effectiveness — General

J Infect Dis: [mRNA Vaccine Effectiveness against COVID-19 among Symptomatic Outpatients Aged ≥16 Years in the United States, February – May 2021](#) (08 September 2021)

"Evaluations of vaccine effectiveness (VE) are important to monitor as COVID-19 vaccines are introduced in the general population. Research staff enrolled symptomatic participants seeking outpatient medical care for COVID-19-like illness or SARS-CoV-2 testing from a multisite network. VE was evaluated using the test-negative design. Among 236 SARS-CoV-2 nucleic acid amplification test-positive and 576 test-negative participants aged ≥16 years, VE of mRNA vaccines against COVID-19 was 91% (95% CI: 83-95) for full vaccination and 75% (95% CI: 55-87) for partial vaccination. Vaccination was associated with prevention of most COVID-19 cases among people seeking outpatient medical care."

NEJM: [Effectiveness of Covid-19 Vaccines in Ambulatory and Inpatient Care Settings](#) (08 September 2021)

"Background: There are limited data on the effectiveness of the vaccines against symptomatic coronavirus disease 2019 (Covid-19) currently authorized in the United States with respect to hospitalization, admission to an intensive care unit (ICU), or ambulatory care in an emergency department or urgent care clinic.

Methods: We conducted a study involving adults (≥50 years of age) with Covid-19-like illness who underwent molecular testing for severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). We assessed 41,552 admissions to 187 hospitals and 21,522 visits to 221 emergency departments or urgent care clinics during the period from January 1 through June 22, 2021, in multiple states. The patients' vaccination status was documented in electronic health records and immunization registries. We used a test-negative design to estimate vaccine effectiveness by comparing the odds of a positive test for SARS-CoV-2 infection among vaccinated patients with those among unvaccinated patients. Vaccine effectiveness was adjusted with weights based on propensity-for-vaccination scores and according to age, geographic region, calendar time (days from January 1, 2021, to the index date for each medical visit), and local virus circulation.

Results: The effectiveness of full messenger RNA (mRNA) vaccination (≥14 days after the second dose) was 89% (95% confidence interval [CI], 87 to 91) against laboratory-confirmed SARS-CoV-2 infection leading to hospitalization, 90% (95% CI, 85 to 93) against infection leading to an ICU admission, and 91% (95% CI, 89 to 93) against infection leading to an emergency department or urgent care clinic visit. The effectiveness of full vaccination with respect to a Covid-19-associated hospitalization or emergency department or urgent care clinic visit was similar with the BNT162b2 and mRNA-1273 vaccines and ranged from 81% to

95% among adults 85 years of age or older, persons with chronic medical conditions, and Black or Hispanic adults. The effectiveness of the Ad26.COV2.S vaccine was 68% (95% CI, 50 to 79) against laboratory-confirmed SARS-CoV-2 infection leading to hospitalization and 73% (95% CI, 59 to 82) against infection leading to an emergency department or urgent care clinic visit.

Conclusions: Covid-19 vaccines in the United States were highly effective against SARS-CoV-2 infection requiring hospitalization, ICU admission, or an emergency department or urgent care clinic visit. This vaccine effectiveness extended to populations that are disproportionately affected by SARS-CoV-2 infection."

Eurosurveillance: [Vaccine effectiveness against infection with the Delta (B.1.617.2) variant, Norway, April to August 2021](link) (02 September 2021)

"Some variants of SARS-CoV-2 are associated with increased transmissibility, increased disease severity or decreased vaccine effectiveness (VE). In this population-based cohort study (n = 4,204,859), the Delta variant was identified in 5,430 (0.13%) individuals, of whom 84 were admitted to hospital. VE against laboratory confirmed infection with the Delta variant was 22.4% among partly vaccinated (95% confidence interval (CI): 17.0-27.4) and 64.6% (95% CI: 60.6-68.2) among fully vaccinated individuals, compared with 54.5% (95% CI: 50.4-58.3) and 84.4% (95%CI: 81.8-86.5) against the Alpha variant."

Effectiveness — in HCWs

Clin Infect Dis: [Single-dose mRNA vaccine effectiveness against SARS-CoV-2 in healthcare workers extending 16 weeks post-vaccination: a test-negative design from Quebec, Canada](link) (30 August 2021)

"Introduction: In Canada, first and second doses of mRNA vaccines against SARS-CoV-2 were uniquely spaced 16 weeks apart, but the duration of single-dose protection remains uncertain. We estimated one- and two-dose mRNA vaccine effectiveness (VE) among healthcare workers (HCWs) in Quebec, Canada including protection against varying outcome severity, variants of concern (VOC), and the stability of single-dose protection out to 16 weeks post-vaccination.

Methods: A test-negative design compared vaccination among SARS-CoV-2 test-positive and weekly-matched (10:1), randomly-sampled, test-negative HCWs using linked surveillance and immunization databases. Vaccine status was defined by one dose ≥14 days or two doses ≥7 days before illness onset or specimen collection. Adjusted VE was estimated by conditional logistic regression.

Results: Primary analysis included 5,316 cases and 53,160 controls. Single-dose VE was 70% (95%CI: 68-73) against SARS-CoV-2 infection, 73% (95%CI: 71-75) against COVID-19 illness and 97% (95%CI: 92-99) against associated hospitalization. Two-dose VE was 86% (95%CI: 81-90) and 93% (95%CI: 89-95), respectively, with no associated hospitalizations. VE was higher for non-VOC than VOC (73% Alpha) among single-dose (77%, 95%CI: 73-81 versus 63%, 95%CI: 57-67) but not two-dose recipients (87%, 95%CI: 57-96 versus 94%, 95%CI: 89-96). Across 16 weeks, no decline in single-dose VE was observed with appropriate stratification based upon prioritized vaccination determined by higher versus lower likelihood of direct patient contact.

Conclusion: One mRNA vaccine dose provided substantial and sustained protection to HCWs extending at least four months post-vaccination. In circumstances of vaccine shortage, delaying the second dose may be a pertinent public health strategy to consider."

JAMA: Comparison of SARS-CoV-2 Antibody Response Following Vaccination With BNT162b2 and mRNA-1273 (30 August 2021)

"This study compares the immune responses to the BNT162b2 (Pfizer-BioNTech) and mRNA-1273 (Moderna) COVID-19 vaccines in health care workers in Belgium….

This study demonstrated a significantly higher humoral immunogenicity of the SARS-CoV-2 mRNA-1273 vaccine (Moderna) compared with the BNT162b2 vaccine (Pfizer-BioNTech), in infected as well as uninfected participants, and across age categories. The higher mRNA content in mRNA-1273 compared with BNT162b2 and the longer interval between priming and boosting for mRNA-1273 (4 weeks vs 3 weeks for BNT162b2) might explain this difference."

JAMA Netw Open: Durability of Spike Immunoglobin G Antibodies to SARS-CoV-2 Among Health Care Workers With Prior Infection (30 August 2021)

"This cohort study examines the durability of spike antibodies to SARS-CoV-2 among a cohort of US health workers….

Our results demonstrated the durability of spike antibodies to SARS-CoV-2 up to 10 months after natural infection. The Centers for Disease Control and Prevention acknowledges that prior SARS-CoV-2 infection reduces the risk of reinfection for a minimum 90-day period. Our data demonstrate durability of IgG titers well beyond this period and extend recently published intervals of 6 to 8 months."

Adverse Effects / Events

JAMA: Surveillance for Adverse Events After COVID-19 mRNA Vaccination (03 September 2021)

"Question: Are mRNA COVID-19 vaccines associated with increased risk for serious health outcomes during days 1 to 21 after vaccination?

Findings: In this interim analysis of surveillance data from 6.2 million persons who received 11.8 million doses of an mRNA vaccine, event rates for 23 serious health outcomes were not significantly higher for individuals 1 to 21 days after vaccination compared with similar individuals at 22 to 42 days after vaccination.

Meaning: This analysis found no significant associations between vaccination with mRNA COVID-19 vaccines and selected serious health outcomes 1 to 21 days after vaccination, although CIs were wide for some rate ratio estimates and additional follow-up is ongoing."

MMWR: [Association Between COVID-19 and Myocarditis Using Hospital-Based Administrative Data — United States, March 2020–January 2021](#) (03 September 2021)

"What is already known about this topic? Viral infections are a common cause of myocarditis. Some studies have indicated an association between COVID-19 and myocarditis.

What is added by this report? During March 2020–January 2021, patients with COVID-19 had nearly 16 times the risk for myocarditis compared with patients who did not have COVID-19, and risk varied by sex and age.

What are the implications for public health practice? These findings underscore the importance of implementing evidence-based COVID-19 prevention strategies, including vaccination, to reduce the public health impact of COVID-19 and its associated complications."

JAMA Neurol: [Rate of Recurrent Guillain-Barré Syndrome After mRNA COVID-19 Vaccine BNT162b2](#) (01 September 2021)

"This study establishes rates of Guillian-Barré syndrome relapse among Pfizer-BioNTech BNT162b2 vaccine receivers….

To our knowledge, this is the first study assessing safety of messenger RNA COVID-19 vaccine in previously diagnosed cases of GBS. In this cohort study, which included 702 patients, only 1 needed short medical care for relapse of previous syndrome, which represents a minimal risk."

JAMA Netw Open: [Prevalence of Allergic Reactions After Pfizer-BioNTech COVID-19 Vaccination Among Adults With High Allergy Risk](#) (31 August 2021)

"Question: Can patients at high risk for anaphylactic reactions receive the Pfizer-BioNTech (BNT162b2) COVID-19 vaccine?

Findings: In this cohort study of 8102 individuals with an allergy history, an algorithm was used to define 429 (5%) as "highly allergic"; this group was referred to receive immunization under medical supervision. A total of 98% of the highly allergic individuals had no allergic reaction, 6 (1%) had mild allergic responses, and 3 (0.7%) had anaphylactic reactions.

Meaning: This study's findings suggest that a simple algorithm enables immunization of most patients with a history of allergy, while only patients defined as highly allergic should receive vaccination under medical supervision."

Emerg Infect Dis: Fatal Systemic Capillary Leak Syndrome after SARS-CoV-2 Vaccination in Patient with Multiple Myeloma (30 August 2021)

"A young man with smoldering multiple myeloma died of hypotensive shock 2.5 days after severe acute respiratory syndrome coronavirus 2 vaccination. Clinical findings suggested systemic capillary leak syndrome (SCLS); the patient had experienced a previous suspected flare episode. History of SCLS may indicate higher risk for SCLS after receiving this vaccine."

BMJ: Risk of thrombocytopenia and thromboembolism after covid-19 vaccination and SARS-CoV-2 positive testing: self-controlled case series study (26 August 2021)

"Objective: To assess the association between covid-19 vaccines and risk of thrombocytopenia and thromboembolic events in England among adults.

Design: Self-controlled case series study using national data on covid-19 vaccination and hospital admissions.

Setting: Patient level data were obtained for approximately 30 million people vaccinated in England between 1 December 2020 and 24 April 2021. Electronic health records were linked with death data from the Office for National Statistics, SARS-CoV-2 positive test data, and hospital admission data from the United Kingdom's health service (NHS).

Participants: 29 121 633 people were vaccinated with first doses (19 608 008 with Oxford-AstraZeneca (ChAdOx1 nCoV-19) and 9 513 625 with Pfizer-BioNTech (BNT162b2 mRNA)) and 1 758 095 people had a positive SARS-CoV-2 test. People aged ≥16 years who had first doses of the ChAdOx1 nCoV-19 or BNT162b2 mRNA vaccines and any outcome of interest were included in the study.

Main outcome measures: The primary outcomes were hospital admission or death associated with thrombocytopenia, venous thromboembolism, and arterial thromboembolism within 28 days of three exposures: first dose of the ChAdOx1 nCoV-19 vaccine; first dose of the BNT162b2 mRNA vaccine; and a SARS-CoV-2 positive test. Secondary outcomes were subsets of the primary outcomes: cerebral venous sinus thrombosis (CVST), ischaemic stroke, myocardial infarction, and other rare arterial thrombotic events.

Results: The study found increased risk of thrombocytopenia after ChAdOx1 nCoV-19 vaccination (incidence rate ratio 1.33, 95% confidence interval 1.19 to 1.47 at 8-14 days) and after a positive SARS-CoV-2 test (5.27, 4.34 to 6.40 at 8-14 days); increased risk of venous thromboembolism after ChAdOx1 nCoV-19 vaccination (1.10, 1.02 to 1.18 at 8-14 days) and after SARS-CoV-2 infection (13.86, 12.76 to 15.05 at 8-14 days); and increased risk of arterial thromboembolism after BNT162b2 mRNA vaccination (1.06, 1.01 to 1.10 at 15-21 days) and after SARS-CoV-2 infection (2.02, 1.82 to 2.24 at 15-21 days). Secondary analyses found increased risk of CVST after ChAdOx1 nCoV-19 vaccination (4.01, 2.08 to 7.71 at 8-14 days), after BNT162b2 mRNA vaccination (3.58, 1.39 to 9.27 at 15-21 days), and after a positive SARS-CoV-2 test; increased risk of ischaemic stroke after BNT162b2 mRNA vaccination (1.12, 1.04 to 1.20 at 15-21 days) and after a positive SARS-CoV-2 test; and increased risk of other rare arterial thrombotic events after ChAdOx1 nCoV-19 vaccination (1.21, 1.02 to 1.43 at 8-14 days) and after a positive SARS-CoV-2 test.

Conclusion: Increased risks of haematological and vascular events that led to hospital admission or death were observed for short time intervals after first doses of the ChAdOx1 nCoV-19 and BNT162b2 mRNA vaccines. The risks of most of these events were substantially higher and more prolonged after SARS-CoV-2 infection than after vaccination in the same population."

See also: BMJ editorial

Hesitancy

JAMA Netw Open: Racial/Ethnic Differences in COVID-19 Vaccine Hesitancy Among Health Care Workers in 2 Large Academic Hospitals (30 August 2021)

"Question: What are the differences in COVID-19 vaccine hesitancy by race/ethnicity among health care workers (HCWs)?

Findings: This survey study of 10 871 HCWs from 2 academic hospitals found that, compared with White HCWs, vaccine hesitancy was increased nearly 5-fold among Black HCWs, 2-fold among Hispanic or Latino HCWs, and by nearly 50% among Asian HCWs and HCWs who were members of other racial/ethnic groups.

Meaning: These findings suggest that interventions focused on addressing vaccine hesitancy among HCWs are needed, particularly for Black and Hispanic or Latino HCWs, among whom hesitancy is highest."

Breakthrough Infections, Reinfections, and Coinfections

News in Brief

"They're called mild cases. But people with breakthrough covid can still feel pretty sick. Coronavirus vaccines overwhelmingly keep people out of the hospital but don't necessarily stop all infections" ([WP](#)).

Journal Articles

J Infect Dis: [Characteristics of Persons with Secondary Detection of SARS-CoV-2 ≥90 days After First Detection — New Mexico, 2020](#) (07 September 2021)

> "New Mexico Department of Health (NMDOH) conducted a matched case-control study to compare 315 persons (cases) with and 945 persons (controls) without SARS-CoV-2 secondary detection (i.e., positive SARS-CoV-2 test ≥90 days after first detection as of December 10, 2020). Compared with controls, cases had greater odds of higher SARS-CoV-2 testing frequency (adjusted odds ratio [aOR] = 1.2), being female (aOR = 1.6), being non-Hispanic American Indian/Alaska Native (aOR = 2.3), having diabetes mellitus (aOR = 1.8), and residing/working in detention/correctional facilities (aOR = 4.7). Diagnostic tools evaluating infectiousness at secondary detection are urgently needed to inform infection control practices."

Clin Infect Dis: [SARS-CoV-2 Reinfection: A Case Series from a 12-Month Longitudinal Occupational Cohort](#) (28 August 2021)

> "Seven cases of COVID-19 SARS-CoV-2 reinfection from the NBA 2020-2021 occupational testing cohort are described including clinical details, antibody test results, genomic sequencing, and longitudinal RT-PCR results. Reinfections were infrequent and varied in clinical presentation, viral dynamics, and immune response."

EClinicalMedicine: [Outcomes among patients with breakthrough SARS-CoV-2 infection after vaccination in a high-risk national population](#) (28 August 2021)

> "Background: Breakthrough infections after SARS-CoV-2 infection have been reported. Clinical outcomes among persons with breakthrough infection are not known.
>
> Methods: We retrospectively identified all Veterans with a confirmed SARS-CoV-2 infection >14 days after the second dose of either Pfizer-BNT-162b2 or Moderna-mRNA-1273 vaccine between December 15, 2020 and March 30, 2021, and age, race, sex, body mass index, Charlson comorbidity index, geographical location, and date of positive test matched unvaccinated controls with SARS-CoV-2 infection. Our primary endpoint was the rate or severe disease defined as hospitalization, mechanical ventilation, or death in both groups.

Findings: Among 258,716 persons with both doses of vaccines and 756,150 without any vaccination, we identified 271 (0.1%) vaccinated persons with breakthrough infection and 48,114 (6.4%) unvaccinated matched controls with infection between December 15, 2020 and March 30, 2021. Among 213 matched pairs, symptoms were present in 33.3% of those with breakthrough infection and 42.2% of the controls. A total of 79 persons met the definition of severe disease or death (42 in the breakthrough infection group and 37 in the control group). Rate of severe disease or death per 1,000 person-days (95% CI) was 4.08 (2.64,5.31) among those with breakthrough infection and 3.6 (2.53,4.73) among the controls (P = 0.58). Rate was similar among both groups regardless of age-group, race, BMI or presence of comorbidities. Among persons with breakthrough infection and matched controls with infection, vaccination was not associated with a lower risk of severe disease or death in the main analyses but was associated with a lower risk when matching did not include geographic location (HR 0.62, 95% CI 0.43,0.91).

Interpretation: Demographic or clinical factors are not associated with a lower risk of severe disease or death in persons with breakthrough SARS-CoV-2 infection."

Treatments and Management

News in Brief

Crisis Standards of Care

Things are bad… Idaho has activated its crisis standards of care in two areas because of staffing shortages and lack of ICU beds ([BSPR](#)).

"Across the COVID-ravaged south, high-level life support is difficult to find" ([NPR](#)).

Ivermectin

"Poison control centers are fielding a surge of ivermectin overdose calls" ([NPR](#)).

"More hospitals sued over right to try ivermectin" ([Medpage](#)).

"Judge says Ohio hospital cannot be forced to use ivermectin to treat Covid, reversing earlier decision – 'Public policy should not and does not support allowing physicians to try "any" type of treatment on human beings,' the judge wrote" ([NBC](#)).

Meanwhile, the AMA, APhA, and ASHP released a joint statement that they 'strongly oppose the ordering, prescribing, or dispensing of ivermectin to prevent or treat COVID-19 outside of a clinical trial'; the ACEP also warned emergency physicians to not take the antiparasitic agent ([AMA](#); [ACEP](#)).

It's a bit questionable to give to incarcerated people, too ([AP](#)).

Long read: "Ivermectin is anti-vaxxers' latest COVID drug of choice. A study promoting it has suspect data. An influential study from Argentina has been used to argue that ivermectin prevents COVID 100% of the time — but its inconsistencies have led experts to question if it could have actually happened as advertised" ([BFN](#)).

Journal Articles

EClinicalMedicine: [Conventional oxygen therapy versus CPAP as a ceiling of care in ward-based patients with COVID-19: a multi-centre cohort evaluation](#) (08 September 2021)

> "Background: Continuous positive airway pressure (CPAP) therapy is commonly used for respiratory failure due to severe COVID-19 pneumonitis, including in patients deemed not likely to benefit from invasive mechanical ventilation (nIMV). Little evidence exists demonstrating superiority over conventional oxygen therapy, whilst ward-level delivery of CPAP presents practical challenges. We sought to compare clinical outcomes of oxygen therapy versus CPAP therapy in patients with COVID-19 who were nIMV.
>
> Methods: This retrospective multi-centre cohort evaluation included patients diagnosed with COVID-19 who were nIMV, had a treatment escalation plan of ward-level care and clinical frailty scale ≤ 6. Recruitment occurred during the first two waves of the UK COVID-19 pandemic in 2020; from 1st March to May 31st, and from 1st September to 31st December. Patients given CPAP were compared to patients receiving oxygen therapy that required FiO_2 ≥0.4 for more than 12 hours at hospitals not providing ward-level CPAP. Logistic regression modelling was performed to compare 30-day mortality between treatment groups, accounting for important confounders and within-hospital clustering.
>
> Findings: Seven hospitals provided data for 479 patients during the UK COVID-19 pandemic in 2020. Overall 30-day mortality was 75.6% in the oxygen group (186/246 patients) and 77.7% in the CPAP group (181/233 patients). A lack of evidence for a treatment effect persisted in the adjusted model (adjusted odds ratio 0.84 95% CI 0.57-1.23, p=0.37). 49.8% of patients receiving CPAP-therapy (118/237) chose to discontinue it.
>
> Interpretation: No survival difference was found between using oxygen alone or CPAP to treat patients with severe COVID-19 who were nIMV. A high patient-initiated discontinuation rate for CPAP suggests a significant treatment burden. Further reflection is warranted on the current treatment guidance and widespread application of CPAP in this setting."

J Antimicrob Chemother: [Impact of remdesivir according to the pre-admission symptom duration in patients with COVID-19](#) (02 September 2021)

"Background: The use of remdesivir has demonstrated a significant reduction in the time to recovery in patients with COVID-19. However, the impact on mortality is still controversial. Therefore, it is necessary to evaluate whether there is a specific subgroup of patients in whom an active antiviral therapy also reduces the mortality.

Methods: Patients admitted for >48 h in our hospital for a SARS-CoV-2 confirmed or suspected infection from February 2020 to February 2021 were retrospectively analysed. The primary outcome of the study was mortality at 30 days. Univariate and multivariate analyses were performed to identify predictors of mortality.

Results: In total, 2607 patients (438 receiving remdesivir and 2169 not) were included with a median (IQR) age of 65 (54-77) years and 58% were male. Four hundred and seventy-six were admitted to the ICU (18.3%) and 264 required invasive mechanical ventilation (10.1%). The global 30 day mortality rate was 10.7%. Pre-admission symptom duration of 4-6 days and ≤3 days was associated with a 1.5- and 2.5-fold increase in the mortality rate, respectively, in comparison with >6 days and treatment with remdesivir was independently associated with a lower mortality rate (OR = 0.382, 95% CI = 0.218-0.671). The analysis showed that the major difference was among patients with shorter pre-admission symptom duration (<6 days).

Conclusions: Patients with ≤3 days and 4-6 days from symptom onset to admission are associated with a 2.5- and 1.5-fold higher risk of death, respectively. Remdesivir was associated with 62% reduced odds of death versus standard-of-care and its survival benefit increased with shorter duration of symptoms."

Lancet Respir Med: [Efficacy and safety of baricitinib for the treatment of hospitalised adults with COVID-19 (COV-BARRIER): a randomised, double-blind, parallel-group, placebo-controlled phase 3 trial](#) (01 September 2021)

"Background: Baricitinib is an oral selective Janus kinase 1/2 inhibitor with known anti-inflammatory properties. This study evaluates the efficacy and safety of baricitinib in combination with standard of care for the treatment of hospitalised adults with COVID-19.

Methods: In this phase 3, double-blind, randomised, placebo-controlled trial, participants were enrolled from 101 centres across 12 countries in Asia, Europe, North America, and South America. Hospitalised adults with COVID-19 receiving standard of care were randomly assigned (1:1) to receive once-daily baricitinib (4 mg) or matched placebo for up to 14 days. Standard of care included systemic corticosteroids, such as dexamethasone, and antivirals, including remdesivir. The composite primary endpoint was the proportion who progressed to high-flow oxygen, non-invasive ventilation, invasive mechanical ventilation, or death by day 28, assessed in the intention-to-treat population. All-cause mortality by day 28 was a key secondary endpoint, and all-cause mortality by day 60 was an exploratory endpoint; both were assessed in the intention-to-treat population. Safety analyses were done in the

safety population defined as all randomly allocated participants who received at least one dose of study drug and who were not lost to follow-up before the first post-baseline visit. This study is registered with ClinicalTrials.gov, NCT04421027.

Findings: Between June 11, 2020, and Jan 15, 2021, 1525 participants were randomly assigned to the baricitinib group (n=764) or the placebo group (n=761). 1204 (79·3%) of 1518 participants with available data were receiving systemic corticosteroids at baseline, of whom 1099 (91·3%) were on dexamethasone; 287 (18·9%) participants were receiving remdesivir. Overall, 27·8% of participants receiving baricitinib and 30·5% receiving placebo progressed to meet the primary endpoint (odds ratio 0·85 [95% CI 0·67 to 1·08], p=0·18), with an absolute risk difference of −2·7 percentage points (95% CI −7·3 to 1·9). The 28-day all-cause mortality was 8% (n=62) for baricitinib and 13% (n=100) for placebo (hazard ratio [HR] 0·57 [95% CI 0·41–0·78]; nominal p=0·0018), a 38·2% relative reduction in mortality; one additional death was prevented per 20 baricitinib-treated participants. The 60-day all-cause mortality was 10% (n=79) for baricitinib and 15% (n=116) for placebo (HR 0·62 [95% CI 0·47–0·83]; p=0·0050). The frequencies of serious adverse events (110 [15%] of 750 in the baricitinib group vs 135 [18%] of 752 in the placebo group), serious infections (64 [9%] vs 74 [10%]), and venous thromboembolic events (20 [3%] vs 19 [3%]) were similar between the two groups.

Interpretation: Although there was no significant reduction in the frequency of disease progression overall, treatment with baricitinib in addition to standard of care (including dexamethasone) had a similar safety profile to that of standard of care alone, and was associated with reduced mortality in hospitalised adults with COVID-19."

EClinicalMedicine: [Casirivimab–Imdevimab treatment is associated with reduced rates of hospitalization among high-risk patients with mild to moderate coronavirus disease-19](#) (30 August 2021)

"Background: Real-world clinical data to support the use of casirivimab–imdevimab for the treatment of outpatients with mild to moderate coronavirus disease-19 (COVID-19) is needed. This study aimed to assess the outcomes of casirivimab–imdevimab treatment of mild to moderate COVID-19.

Methods: A retrospective cohort of 696 patients who received casirivimab–imdevimab between December 4, 2020 and April 9, 2021 was compared to a propensity-matched control of 696 untreated patients with mild to moderate COVID-19 at Mayo Clinic sites in Arizona, Florida, Minnesota, and Wisconsin. Primary outcome was rate of hospitalization at days 14, 21 and 28 after infusion.

Findings: The median age of the antibody-treated cohort was 63 years (interquartile range, 52–71); 45·5% were ≥65 years old; 51.4% were female. High-risk characteristics were hypertension (52.4%), body mass index ≥35 (31.0%), diabetes mellitus (24.6%), chronic lung

disease (22.1%), chronic renal disease (11.4%), congestive heart failure (6.6%), and compromised immune function (6.7%). Compared to the propensity-matched untreated control, patients who received casirivimab–imdevimab had significantly lower all-cause hospitalization rates at day 14 (1.3% vs 3.3%; Absolute Difference: 2.0%; 95% confidence interval (CI): 0.5–3.7%), day 21 (1.3% vs 4.2%; Absolute Difference: 2.9%; 95% CI: 1.2–4.7%), and day 28 (1.6% vs 4.8%; Absolute Difference: 3.2%; 95% CI: 1.4–5.1%). Rates of intensive care unit admission and mortality at days 14, 21 and 28 were similarly low for antibody-treated and untreated groups.

Interpretation: Among high-risk patients with mild to moderate COVID-19, casirivimab–imdevimab treatment was associated with a significantly lower rate of hospitalization."

J Thromb Haemost: [Association of Pre-Hospital Antiplatelet Therapy with Survival in Patients Hospitalized with COVID-19: A Propensity Score-Matched Analysis](#) (29 August 2021)

"Purpose: Coronavirus disease-2019 (COVID-19) is associated with hypercoagulability and increased thrombotic risk. The impact of pre-hospital antiplatelet therapy on in-hospital mortality is uncertain.

Methods: This was an observational cohort study of 34,675 patients ≥50 years old from 90 health systems in the United States. Patients were hospitalized with laboratory confirmed COVID-19 between February 2020 and September 2020. For all patients, the propensity to receive pre-hospital antiplatelet therapy was calculated using demographics and comorbidities. Patients were matched based on propensity scores, and in-hospital mortality was compared between the antiplatelet and non-antiplatelet groups.

Results: The propensity score-matched cohort of 17,347 patients was comprised of 6,781 and 10,566 patients in the antiplatelet and non-antiplatelet therapy groups, respectively. In-hospital mortality was significantly lower in patients receiving pre-hospital antiplatelet therapy (18.9% vs. 21.5%, p<0.001), resulting in a 2.6% absolute reduction in mortality (HR 0.81, 95% CI 0.76-0.87, p<0.005). On average, 39 patients needed to be treated to prevent 1 in-hospital death. In the antiplatelet therapy group, there was a significantly lower rate of pulmonary embolism (2.2% vs. 3.0%, p=0.002) and higher rate of epistaxis (0.9% vs. 0.4%, p<0.001). There was no difference in the rate of other hemorrhagic or thrombotic complications.

Conclusions: In the largest observational study to date of pre-hospital antiplatelet therapy in patients with COVID-19, there was an association with significantly lower in-hospital mortality. Randomized controlled trials in diverse patient populations with high rates of baseline comorbidities are needed to determine the ultimate utility of antiplatelet therapy in COVID-19."

Pre-Existing Conditions, Comorbidities, and Impact on Other Health Issues

Journal Articles

Clin Infect Dis: [Projected long-term impact of the COVID-19 pandemic on hepatitis C outcomes in the United States: a modelling study](#) (09 September 2021)

"Background: The COVID-19 pandemic disrupted access to and uptake of hepatitis C (HCV) care services in the U.S. It is unknown how substantially the pandemic will impact long-term HCV-related outcomes.

Methods: We used a microsimulation to estimate the 10-year impact of COVID-19 disruptions in healthcare delivery on HCV outcomes including identified infections, linkage to care, treatment initiation and completion, cirrhosis, and liver-related death. We modeled hypothetical scenarios consisting of an 18-month pandemic-related disruption in HCV care starting in March 2020 followed by varying returns to pre-pandemic rates of screening, linkage, and treatment through March 2030 and compared them to a counterfactual scenario in which there was no COVID-19 pandemic or disruptions in care. We also performed alternate scenario analyses in which the pandemic disruption lasted for 12- and 24-months.

Results: Compared to the 'no pandemic' scenario, in the scenario in which there is no return to pre-pandemic levels of HCV care delivery, we estimate 1,060 fewer identified cases, 21 additional cases of cirrhosis, and 16 additional liver-related deaths per 100,000 people. Only 3% of identified cases initiate treatment and <1% achieve sustained virologic response (SVR). Compared to 'no pandemic', the best-case scenario in which an 18-month care disruption is followed by a return to pre-pandemic levels, we estimated a smaller proportion of infections identified and achieving SVR.

Conclusions: A recommitment to the HCV epidemic in the U.S. that involves additional resources coupled with aggressive efforts to screen, link, and treat people with HCV is needed to overcome the COVID-19-related disruptions."

Infect Control Hosp Epidemiol: [The impact of coronavirus disease 2019 (COVID-19) on healthcare-associated infections in 2020: A summary of data reported to the National Healthcare Safety Network](#) (03 September 2021)

"Objectives: To determine the impact of the coronavirus disease 2019 (COVID-19) pandemic on healthcare-associated infection (HAI) incidence in US hospitals, national- and state-level standardized infection ratios (SIRs) were calculated for each quarter in 2020 and compared to those from 2019.

Methods: Central–line–associated bloodstream infections (CLABSIs), catheter-associated urinary tract infections (CAUTIs), ventilator-associated events (VAEs), select surgical site

infections, and Clostridioides difficile and methicillin-resistant Staphylococcus aureus (MRSA) bacteremia laboratory-identified events reported to the National Healthcare Safety Network for 2019 and 2020 by acute-care hospitals were analyzed. SIRs were calculated for each HAI and quarter by dividing the number of reported infections by the number of predicted infections, calculated using 2015 national baseline data. Percentage changes between 2019 and 2020 SIRs were calculated. Supporting analyses, such as an assessment of device utilization in 2020 compared to 2019, were also performed.

Results: Significant increases in the national SIRs for CLABSI, CAUTI, VAE, and MRSA bacteremia were observed in 2020. Changes in the SIR varied by quarter and state. The largest increase was observed for CLABSI, and significant increases in VAE incidence and ventilator utilization were seen across all 4 quarters of 2020.

Conclusions: This report provides a national view of the increases in HAI incidence in 2020. These data highlight the need to return to conventional infection prevention and control practices and build resiliency in these programs to withstand future pandemics."

J Antimicrob Chemother: [Impact of the COVID-19 pandemic on the surveillance, prevention and control of antimicrobial resistance: a global survey](#) (02 September 2021)

"Objectives: The COVID-19 pandemic has had a substantial impact on health systems. The WHO Antimicrobial Resistance (AMR) Surveillance and Quality Assessment Collaborating Centres Network conducted a survey to assess the effects of COVID-19 on AMR surveillance, prevention and control.

Methods: From October to December 2020, WHO Global Antimicrobial Resistance and Use Surveillance System (GLASS) national focal points completed a questionnaire, including Likert scales and open-ended questions. Data were descriptively analysed, income/regional differences were assessed and free-text questions were thematically analysed.

Results: Seventy-three countries across income levels participated. During the COVID-19 pandemic, 67% reported limited ability to work with AMR partnerships; decreases in funding were frequently reported by low- and middle-income countries (LMICs; $P < 0.01$). Reduced availability of nursing, medical and public health staff for AMR was reported by 71%, 69% and 64%, respectively, whereas 67% reported stable cleaning staff availability. The majority (58%) reported reduced reagents/consumables, particularly LMICs ($P < 0.01$). Decreased numbers of cultures, elective procedures, chronically ill admissions and outpatients and increased ICU admissions reported could bias AMR data. Reported overall infection prevention and control (IPC) improvement could decrease AMR rates, whereas increases in selected inappropriate IPC practices and antimicrobial prescribing could increase rates. Most did not yet have complete data on changing AMR rates due to COVID-19.

Conclusions: This was the first survey to explore the global impact of COVID-19 on AMR among GLASS countries. Responses highlight important actions to help ensure that AMR remains a global health priority, including engaging with GLASS to facilitate reliable AMR surveillance data, seizing the opportunity to develop more sustainable IPC programmes, promoting integrated antibiotic stewardship guidance, leveraging increased laboratory capabilities and other system-strengthening efforts."

JAMA Otolaryngol Head Neck Surg: Symptoms Reported With New Onset of Loss of Taste or Smell in Individuals With and Without SARS-CoV-2 Infection (02 September 2021)

"This cross-sectional study uses data from the Centers for Disease Control and Prevention's Coronavirus Self-checker to assess which symptoms are reported with new loss of taste or smell among individuals with and without SARS-CoV-2."

JAMA Otolaryngol Head Neck Surg: Acute Vision Loss From IgG4-Related and Bacterial Rhinosinusitis After COVID-19 (26 August 2021)

"This case report describes a man in his 70s who presented to the emergency department with a headache for 2 weeks and vision loss in the right eye for 2 days and was subsequently diagnosed with IgG4-related and *Streptococcus constellatus* rhinosinusitis."

Long COVID / Post-COVID Period

News in Brief

"Should vaccinated people worry about long Covid? Here's what we know about long Covid — with some hope for the future" (Vox).

"For many, 'long COVID' becoming chronic fatigue — Study finds little reason for optimism about long-term outlook" (Medpage).

Long read, highly recommended: "Long-haulers are fighting for their future — Many people with long COVID feel that science is failing them. Neglecting them could make the pandemic even worse" (Atlantic).

Journal Articles

MMWR: Long-Term Symptoms Among Adults Tested for SARS-CoV-2 — United States, January 2020–April 2021 (10 September 2021)

"What is already known about this topic? Long-term symptoms associated with COVID-19 represent an emerging public health concern.

What is added by this report? In a nonprobability-based sample of U.S. adults tested for SARS-CoV-2, symptoms often associated with SARS-CoV-2 infection were common; 65.9% of respondents whose SARS-CoV-2 test results were positive reported symptoms lasting >4 weeks compared with 42.9% of those whose test results were negative. More persons who received positive test results (76.2%) reported persistence (>4 weeks) of at least one initially occurring symptom compared with those whose test results were negative (69.6%).

What are the implications for public health practice? These findings can aid efforts to address post-COVID conditions and messaging on potential benefits of vaccination."

Clin Infect Dis: Evolution of COVID-19 symptoms during the first 12 months after illness onset (02 September 2021)

"Background: Few robust longitudinal data on long-term COVID-19 symptoms are available. We evaluated symptom onset, severity and recovery across the full spectrum of disease severity, up to one year after illness onset.

Methods: The RECoVERED Study is a prospective cohort study based in Amsterdam, the Netherlands. Participants aged≥18 years were enrolled following SARS-CoV-2 diagnosis via the local Public Health Service and from hospitals. Standardised symptom questionnaires were completed at enrolment, one week and month later, and monthly thereafter. Clinical severity was defined according to WHO criteria. Kaplan-Meier methods were used to compare time from illness onset to symptom recovery, by clinical severity. We examined determinants of time to recovery using multivariable Cox proportional hazards models.

Results: Between 11 May 2020 and 1 May 2021, 342 COVID-19 patients (192[56%] male) were enrolled, of whom 99/342(29%) had mild, 145/342(42%) moderate, 56/342(16%) severe and 42/342(12%) critical disease. The proportion of participants who reported at least one persistent symptom at 12 weeks after illness onset was greater in those with severe/critical disease (86.7%[95%CI=76.5-92.7%]) compared to those with mild or moderate disease (30.7%[95%CI=21.1-40.9%] and 63.8%[95%CI=54.8-71.5%]). At twelve months after illness onset, two-fifths of participants (40.7%[95%CI=34.2-47.1]) continued to report ≥1 symptom. Recovery was slower in female compared to male participants (aHR 0.65[95%CI=0.47-0.92]) and those with a BMI≥30kg/m 2 compared to BMI<25kg/m 2 (HR 0.62[95%CI=0.39-0.97]).

Conclusions: COVID-19 symptoms persisted for one year after illness onset, even in some individuals with mild disease. Female sex and obesity were the most important determinants of speed of recovery from symptoms."

J Am Soc Nephrol: Kidney Outcomes in Long COVID (01 September 2021)

"Background: COVID-19 is associated with increased risk of post-acute sequelae involving pulmonary and extrapulmonary organ systems - referred to as long COVID. However, a detailed assessment of kidney outcomes in long COVID is not yet available.

Methods: We built a cohort of 1,726,683 US Veterans identified from March 01, 2020 to March 15, 2021 including 89,216 30-day COVID-19 survivors and 1,637,467 non-infected controls. We examined risks of AKI, eGFR decline, ESKD, and major adverse kidney events (MAKE) defined as eGFR decline ≥50%, ESKD, or all-cause mortality using inverse probability weighted survival regressions, adjusting for predefined demographic and health characteristics, and algorithmically selected high-dimensional covariates including diagnoses, medications, and laboratory tests. Linear mixed models characterized intra-individual eGFR trajectory.

Results: Beyond the acute illness, 30-day survivors of COVID-19 exhibited a higher risk of AKI (aHR=1.94 (95%CI: 1.86,2.04)), eGFR decline ≥30% (1.25 (1.14,1.37)), eGFR decline ≥40% (1.44 (1.37,1.51)), eGFR decline ≥50% (1.62 (1.51,1.74)), ESKD (2.96 (2.49-3.51)), and MAKE (1.66 (1.58,1.74)). There was a graded increase in risks of post-acute kidney outcomes according to the severity of the acute infection (whether patients were non-hospitalized, hospitalized, or admitted to intensive care). Compared to non-infected controls, 30-day COVID-19 survivors exhibited excess eGFR decline of -3.26 (-3.58, -2.94), -5.20 (-6.24, -4.16), and -7.69 (-8.27, -7.12) mL/min/1.73m2/year in non-hospitalized, hospitalized, and those admitted to intensive care during the acute phase of COVID-19 infection.

Conclusions: COVID-19 survivors exhibited increased risk of kidney outcomes in the post-acute phase of the disease. Post-acute COVID-19 care should involve attention to kidney disease."

Lancet Infect Dis: [Risk factors and disease profile of post-vaccination SARS-CoV-2 infection in UK users of the COVID Symptom Study app: a prospective, community-based, nested, case-control study](#) (01 September 2021)

"Background: COVID-19 vaccines show excellent efficacy in clinical trials and effectiveness in real-world data, but some people still become infected with SARS-CoV-2 after vaccination. This study aimed to identify risk factors for post-vaccination SARS-CoV-2 infection and describe the characteristics of post-vaccination illness.

Methods: This prospective, community-based, nested, case-control study used self-reported data (eg, on demographics, geographical location, health risk factors, and COVID-19 test results, symptoms, and vaccinations) from UK-based, adult (≥18 years) users of the COVID Symptom Study mobile phone app. For the risk factor analysis, cases had received a first or second dose of a COVID-19 vaccine between Dec 8, 2020, and July 4, 2021; had either a positive COVID-19 test at least 14 days after their first vaccination (but before their second; cases 1) or a positive test at least 7 days after their second vaccination (cases 2); and had no

positive test before vaccination. Two control groups were selected (who also had not tested positive for SARS-CoV-2 before vaccination): users reporting a negative test at least 14 days after their first vaccination but before their second (controls 1) and users reporting a negative test at least 7 days after their second vaccination (controls 2). Controls 1 and controls 2 were matched (1:1) with cases 1 and cases 2, respectively, by the date of the post-vaccination test, health-care worker status, and sex. In the disease profile analysis, we sub-selected participants from cases 1 and cases 2 who had used the app for at least 14 consecutive days after testing positive for SARS-CoV-2 (cases 3 and cases 4, respectively). Controls 3 and controls 4 were unvaccinated participants reporting a positive SARS-CoV-2 test who had used the app for at least 14 consecutive days after the test, and were matched (1:1) with cases 3 and 4, respectively, by the date of the positive test, health-care worker status, sex, body-mass index (BMI), and age. We used univariate logistic regression models (adjusted for age, BMI, and sex) to analyse the associations between risk factors and post-vaccination infection, and the associations of individual symptoms, overall disease duration, and disease severity with vaccination status.

Findings: Between Dec 8, 2020, and July 4, 2021, 1 240 009 COVID Symptom Study app users reported a first vaccine dose, of whom 6030 (0·5%) subsequently tested positive for SARS-CoV-2 (cases 1), and 971 504 reported a second dose, of whom 2370 (0·2%) subsequently tested positive for SARS-CoV-2 (cases 2). In the risk factor analysis, frailty was associated with post-vaccination infection in older adults (≥60 years) after their first vaccine dose (odds ratio [OR] 1·93, 95% CI 1·50–2·48; p<0·0001), and individuals living in highly deprived areas had increased odds of post-vaccination infection following their first vaccine dose (OR 1·11, 95% CI 1·01–1·23; p=0·039). Individuals without obesity (BMI <30 kg/m2) had lower odds of infection following their first vaccine dose (OR 0·84, 95% CI 0·75–0·94; p=0·0030). For the disease profile analysis, 3825 users from cases 1 were included in cases 3 and 906 users from cases 2 were included in cases 4. Vaccination (compared with no vaccination) was associated with reduced odds of hospitalisation or having more than five symptoms in the first week of illness following the first or second dose, and long-duration (≥28 days) symptoms following the second dose. Almost all symptoms were reported less frequently in infected vaccinated individuals than in infected unvaccinated individuals, and vaccinated participants were more likely to be completely asymptomatic, especially if they were 60 years or older.

Interpretation: To minimise SARS-CoV-2 infection, at-risk populations must be targeted in efforts to boost vaccine effectiveness and infection control measures. Our findings might support caution around relaxing physical distancing and other personal protective measures in the post-vaccination era, particularly around frail older adults and individuals living in more deprived areas, even if these individuals are vaccinated, and might have implications for strategies such as booster vaccinations."

Women's Health, Pregnancy, and Perinatal Care

News in Brief

"Mississippi has recorded 72 fetal deaths in unvaccinated pregnant women infected with the coronavirus, state health officials announced Wednesday, sounding the alarm on the virus's danger in pregnancy" ([WP](#)).

Journal Articles

Nat Med: [Effectiveness of the BNT162b2 mRNA COVID-19 vaccine in pregnancy](#) (07 September 2021)

> "To evaluate the effectiveness of the BNT162b2 messenger RNA vaccine in pregnant women, we conducted an observational cohort study of pregnant women aged 16 years or older, with no history of SARS-CoV-2, who were vaccinated between 20 December 2020 and 3 June 2021. A total of 10,861 vaccinated pregnant women were matched to 10,861 unvaccinated pregnant controls using demographic and clinical characteristics. Study outcomes included documented infection with SARS-CoV-2, symptomatic COVID-19, COVID-19-related hospitalization, severe illness and death. Estimated vaccine effectiveness from 7 through to 56 d after the second dose was 96% (95% confidence interval 89–100%) for any documented infection, 97% (91–100%) for infections with documented symptoms and 89% (43–100%) for COVID-19-related hospitalization. Only one event of severe illness was observed in the unvaccinated group and no deaths were observed in either group. In summary, the BNT162b2 mRNA vaccine was estimated to have high vaccine effectiveness in pregnant women, which is similar to the effectiveness estimated in the general population."

Vaccines and Pregnancy Loss Risk

JAMA: [Spontaneous Abortion Following COVID-19 Vaccination During Pregnancy](#) (08 September 2021)

> "This Research Letter presents findings from case-control surveillance of COVID-19 vaccination during pregnancy and spontaneous abortion….

> We analyzed the odds of receiving a COVID-19 vaccine in the 28 days prior to spontaneous abortion compared with the odds of receiving a COVID-19 vaccine in the 28 days prior to index dates for ongoing pregnancies….

> Of 105 446 unique pregnancies, 13 160 spontaneous abortions and 92 286 ongoing pregnancies were identified. Overall, 7.8% of women received 1 or more BNT162b2 (Pfizer-BioNTech) vaccines; 6.0% received 1 or more mRNA-1273 (Moderna) vaccines; and 0.5%

received an Ad26.COV.2.S (Janssen) vaccine during pregnancy and before 20 weeks' gestation…. Spontaneous abortions did not have an increased odds of exposure to a COVID-19 vaccination in the prior 28 days compared with ongoing pregnancies (adjusted odds ratio, 1.02; 95% CI, 0.96-1.08)….

Among women with spontaneous abortions, the odds of COVID-19 vaccine exposure were not increased in the prior 28 days compared with women with ongoing pregnancies. Strengths of this surveillance include the availability of a multisite diverse population with robust data capture."

NEJM: [Receipt of mRNA Covid-19 Vaccines and Risk of Spontaneous Abortion](#) (08 September 2021)

"CDC scientists enrolled 2,456 women who were part of the agency's COVID-19 vaccine safety pregnancy registry.

Of all participants, 2,022 reported ongoing pregnancies at 20 weeks' gestation, 165 reported miscarriages (154 of whom miscarried before 14 weeks), 188 completed second-trimester follow-up before 20 weeks' gestation, 16 reported other pregnancy outcomes (eg, induced abortion, ectopic or molar pregnancies), and 65 were lost to follow-up.

Most participants (77.3%) were at least 30 years old, 78.3% were White, and 88.8% were healthcare workers. A little over half the women (52.7%) had received the Pfizer COVID-19 vaccine.

In the primary analysis, the cumulative risk of miscarriage from 6 to less than 20 weeks' gestation was 14.1%, while an analysis using direct maternal age standardization to the reference population showed a 12.8% risk. The risk of miscarriage rose with increasing maternal age.

A sensitivity analysis that assumed that all 65 women with recent contact during their first trimester had a miscarriage, the cumulative risk of miscarriage from 6 to less than 20 weeks' gestation was 18.8%. The risk was slightly lower after age standardization, at 18.5%.

"As compared with data from two historical cohorts that represent the lower and upper ranges of spontaneous-abortion risk, the cumulative risks of spontaneous abortion [miscarriage] from our primary and sensitivity analyses were within the expected risk range," the researchers concluded. "These findings add to the accumulating evidence about the safety of mRNA COVID-19 vaccination in pregnancy.""

Note: [summary taken from CIDRAP,](#) which includes other information, including JAMA Netw Open article, above.

Pediatric Population

News in Brief

"Babies, the delta variant and COVID: what parents need to know" (NPR).

"As schools reopen, child psychiatrists expect to see a surge of kids who need help" (NPR).

"One in seven children may still have symptoms 15 weeks after infection, data show" (BMJ; see also: ResearchSquare preprint [pdf]).

"More than a fourth of the roughly 1 million new weekly cases involve children, according to the American Academy of Pediatrics, with weekly cases in kids hitting its highest point for the pandemic" (Medpage; see also: AAP data).

"Kids and COVID: why young immune systems are still on top — Innate immunity might be the key to why children have fared better with the virus. But the Delta variant poses fresh unknowns" (Nature).

The APP has issued their recommendations on prevention and control of influenza in children (APP).

Journal Articles

JAMA Netw Open: Characteristics of SARS-CoV-2 Infections in Israeli Children During the Circulation of Different SARS-CoV-2 Variants (07 September 2021)

> "This cohort study compares the characteristics of infections from SARS-CoV-2 variants spreading during August to October 2020 vs the variants spreading during December 2020 to February 2021 among children in Israel….
>
> These results demonstrate that SARS-CoV-2 spread more effectively and more rapidly among young children during the time of B.1.1.7 variant circulation in Israel. Transmission rates from children aged 0 to 9 years to other contacts were doubled during the time of B.1.1.7 circulation in Israel. However, hospitalization rates among children decreased. The latter finding is supported by studies in adults reporting increased contagiousness of the B.1.1.7 strain but not necessarily with increased severity."

JAMA Psychiatry: Emergency Department Encounters Among Youth With Suicidal Thoughts or Behaviors During the COVID-19 Pandemic (01 September 2021)

> "Question: Are emergency department encounters among youth with suicidal thoughts or behaviors higher during the COVID-19 pandemic?

Findings: In this cross-sectional study, the incidence rates of suicide-related emergency department encounters among youth in 2020 were comparable with 2019 incidence rates except for a decrease in March to May 2020 vs the same period in 2019 and an increase among girls in June through December 2020 vs the same period in 2019. Youth with no previously documented mental health treatment had more visits in September to December 2020 compared with this period in 2019.

Meaning: The COVID-19 pandemic may worsen mental health for some groups of youth; emergency department–based interventions may support this population."

NEJM: [Household Transmission of SARS-CoV-2 from Children and Adolescents](#) (02 September 2021)

Letter to the editor: "After an outbreak of coronavirus disease 2019 (Covid-19) at an overnight camp, we conducted a retrospective cohort study involving camp attendees and their household contacts to assess secondary transmission and factors associated with household transmission….

This retrospective study showed that the efficient transmission of SARS-CoV-2 from school-age children and adolescents to household members led to the hospitalization of adults with secondary cases of Covid-19. In households in which transmission occurred, half the household contacts were infected. The secondary attack rates in this study were probably underestimates because test results were reported by the patients themselves and testing was voluntary."

Hospital Admissions

MMWR: [Trends in COVID-19 Cases, Emergency Department Visits, and Hospital Admissions Among Children and Adolescents Aged 0–17 Years — United States, August 2020–August 2021](#) (10 September 2021; early release 03 September 2021)

"What is already know about this topic? Severe illness from COVID-19 can and does occur in children and adolescents.

What is added by this report? COVID-19 cases, emergency department visits, and hospital admissions increased from June to August 2021 among persons aged 0-17 years. Emergency department visits and hospital admissions in a 2-week period in August 2021 were higher in states with lower population vaccination coverage and lower in states with higher vaccination coverage.
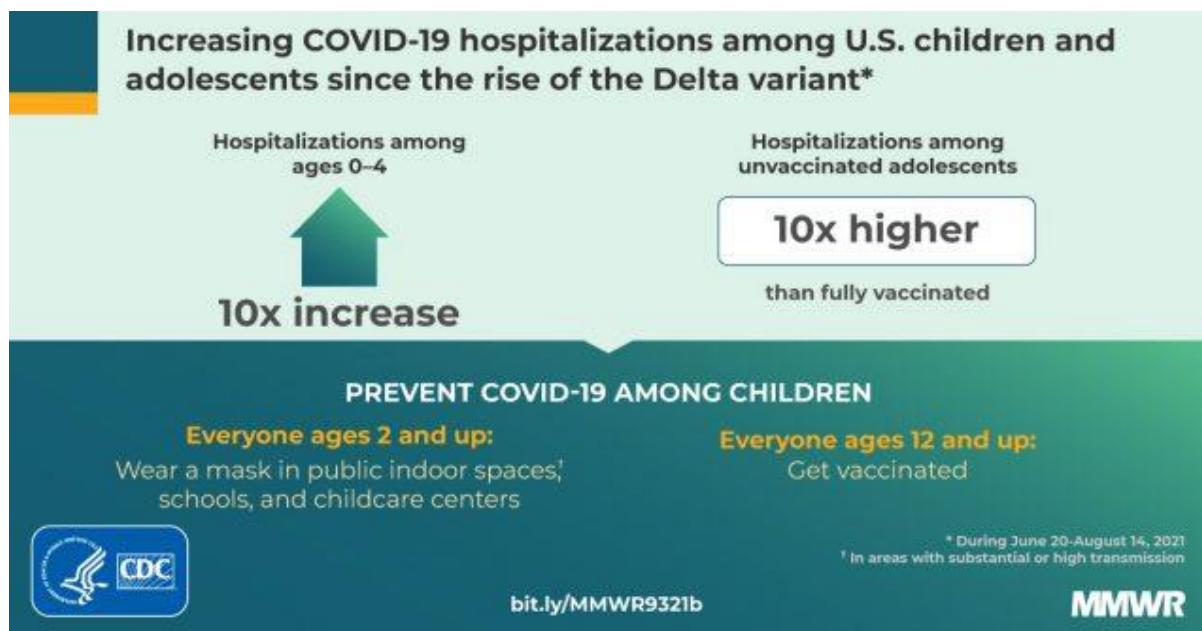
What are the implications for public health? Community vaccination, in coordination with testing strategies and other prevention measures, is critical to protecting pediatric populations from SARS-CoV-2 infection and severe COVID-19."

MMWR: [Hospitalizations Associated with COVID-19 Among Children and Adolescents — COVID-NET, 14 States, March 1, 2020–August 14, 2021](#) (10 September 2021; early release 03 September 2021)

"What is already known about this topic? COVID-19 can cause severe illness in children and adolescents.

What is added by this report? Weekly COVID-19–associated hospitalization rates among children and adolescents rose nearly five-fold during late June–mid-August 2021, coinciding with increased circulation of the highly transmissible SARS-CoV-2 Delta variant. The proportions of hospitalized children and adolescents with severe disease were similar before and during the period of Delta predominance. Hospitalization rates were 10 times higher among unvaccinated than among fully vaccinated adolescents.

What are the implications for public health practice? Preventive measures to reduce transmission and severe outcomes in children and adolescents are critical, including vaccination, universal masking in schools, and masking by persons aged ≥2 years in other indoor public spaces and child care centers."

Outcomes

JAMA Pediatr: [One-Year Outcomes of Critical Care Patients Post–COVID-19 Multisystem Inflammatory Syndrome in Children](#) (30 August 2021)

"This study examines 1-year outcomes of critical care patients in the UK after COVID-19 multisystem inflammatory syndrome in children….

Although our data identify a group of patients with a risk of significant long-term morbidity, it is reassuring that the majority of patients had good outcomes with no significant medium- or long-term sequelae."

Lancet Oncol: [Global characteristics and outcomes of SARS-CoV-2 infection in children and adolescents with cancer (GRCCC): a cohort study](#) (26 August 2021)

"Background: Previous studies have shown that children and adolescents with COVID-19 generally have mild disease. Children and adolescents with cancer, however, can have severe disease when infected with respiratory viruses. In this study, we aimed to understand the clinical course and outcomes of SARS-CoV-2 infection in children and adolescents with cancer.

Methods: We did a cohort study with data from 131 institutions in 45 countries. We created the Global Registry of COVID-19 in Childhood Cancer to capture de-identified data pertaining to laboratory-confirmed SARS-CoV-2 infections in children and adolescents (<19 years) with cancer or having received a haematopoietic stem-cell transplantation. There were no centre-specific exclusion criteria. The registry was disseminated through professional networks through email and conferences and health-care providers were invited to submit all qualifying cases. Data for demographics, oncological diagnosis, clinical course, and cancer therapy details were collected. Primary outcomes were disease severity and modification to cancer-directed therapy. The registry remains open to data collection.

Findings: Of 1520 submitted episodes, 1500 patients were included in the study between April 15, 2020, and Feb 1, 2021. 1319 patients had complete 30-day follow-up. 259 (19·9%) of 1301 patients had a severe or critical infection, and 50 (3·8%) of 1319 died with the cause attributed to COVID-19 infection. Modifications to cancer-directed therapy occurred in 609 (55·8%) of 1092 patients receiving active oncological treatment. Multivariable analysis revealed several factors associated with severe or critical illness, including World Bank low-income or lower-middle-income (odds ratio [OR] 5·8 [95% CI 3·8-8·8]; p<0·0001) and upper-middle-income (1·6 [1·2-2·2]; p=0·0024) country status; age 15-18 years (1·6 [1·1-2·2]; p=0·013); absolute lymphocyte count of 300 or less cells per mm3 (2·5 [1·8-3·4]; p<0·0001), absolute neutrophil count of 500 or less cells per mm3 (1·8 [1·3-2·4]; p=0·0001), and intensive treatment (1·8 [1·3-2·3]; p=0·0005). Factors associated with treatment modification included upper-middle-income country status (OR 0·5 [95% CI 0·3-0·7]; p=0·0004), primary diagnosis of other haematological malignancies (0·5 [0·3-0·8]; p=0·0088), the presence of one of more COVID-19 symptoms at the time of presentation (1·8 [1·3-2·4]; p=0·0002), and the presence of one or more comorbidities (1·6 [1·1-2·3]; p=0·020).

Interpretation: In this global cohort of children and adolescents with cancer and COVID-19, severe and critical illness occurred in one fifth of patients and deaths occurred in a higher proportion than is reported in the literature in the general paediatric population. Additionally, we found that variables associated with treatment modification were not the same as those associated with greater disease severity. These data could inform clinical practice guidelines and raise awareness globally that children and adolescents with cancer are at high-risk of developing severe COVID-19 illness."

Schools

MMWR: [COVID-19 Vaccination Coverage Among Adolescents Aged 12–17 Years — United States, December 14, 2020–July 31, 2021](link) (03 September 2021)

"What is already known about this topic? Although more common among adults, severe COVID-19 illness and hospitalization occur among adolescents.

What is added by this report? As of July 31, 2021, coverage with ≥1 dose of COVID-19 vaccine among adolescents aged 12–17 years was 42%, and 32% had completed the series. Series completion rates varied widely by state, ranging from 11% to 60%, and was 25% for adolescents aged 12–13 years, 30% for those aged 14–15 years, and 40% for those aged 16–17 years.

What are the implications for public health practice? Improving adolescent COVID-19 vaccination coverage is crucial to reduce COVID-19–associated morbidity and mortality among adolescents and can help facilitate safer reopening of schools for in-person learning."

MMWR: [Outbreak Associated with SARS-CoV-2 B.1.617.2 (Delta) Variant in an Elementary School — Marin County, California, May–June 2021](link) (03 September 2021)

"What is already known about this topic? The SARS-CoV-2 B.1.617.2 (Delta) variant is highly transmissible. Prevention guidance in schools varies by jurisdiction.

What is added by this report? During May 23–June 12, 2021, 26 laboratory-confirmed COVID-19 cases occurred among Marin County, California, elementary school students and their contacts following exposure to an unvaccinated infected teacher. The attack rate in one affected classroom was 50%; risk correlated with seating proximity to the teacher.

What are the implications for public health practice? Vaccines are effective against the Delta variant, but transmission risk remains elevated among unvaccinated persons in schools. In addition to vaccination, strict adherence to multiple nonpharmaceutical prevention strategies, including masking, are important to ensure safe school instruction."

Healthcare Workers

News in Brief

"A nurse is bringing light to a dark time with a chandelier made up of vaccine vials" ([NPR](#)).

Journal Articles

Emerg Infect Dis: [Risk for Acquiring Coronavirus Disease Illness among Emergency Medical Service Personnel Exposed to Aerosol-Generating Procedures](#) (September 2021)

> "We investigated the risk of coronavirus disease (COVID-19)- patients transmitting severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) to emergency medical service (EMS) providers, stratified by aerosol-generating procedures (AGP), in King County, Washington, USA, during February 16–July 31, 2020. We conducted a retrospective cohort investigation using a statewide COVID-19 registry and identified 1,115 encounters, 182 with ≥1 AGP. Overall, COVID-19 incidence among EMS personnel was 0.57 infections/10,000 person-days. Incidence per 10,000 person-days did not differ whether or not infection was attributed to a COVID-19 patient encounter (0.28 vs. 0.59; p>0.05). The 1 case attributed to a COVID-19 patient encounter occurred within an at-risk period and involved an AGP. We observed a very low risk for COVID-19 infection attributable to patient encounters among EMS first responders, supporting clinical strategies that maintain established practices for treating patients in emergency conditions."

Clin Infect Dis: [Health Care Personnel (HCP) attitudes about COVID-19 vaccination after emergency use authorization](#) (01 September 2021)

> "Background: We previously reported on COVID-19 vaccination intent among HCP before emergency use authorization. We found widespread hesitancy and a substantial proportion of HCP did not intend to vaccinate.

> Methods: We conducted a cross-sectional survey of HCP, including clinical and non-clinical staff, researchers, and trainees between February 21 and March 19, 2021. The survey evaluated vaccine attitudes, beliefs, intent and acceptance.

> Results: Overall, 3,981 (87.7%) of respondents had already received a COVID-19 vaccine or planned to get vaccinated. There were significant differences in vaccine acceptance by gender, age, race, and hospital role. Males (93.7%) were more likely than females (89.8%) to report vaccine acceptance (p<0.001). Mean age was higher among those reporting vaccine acceptance (p<0.001). Physicians and scientists showed the highest acceptance rate (97.3%), while staff in ancillary services showed the lowest acceptance rate (79.9%). Unvaccinated respondents were more likely to be females, to have refused vaccines in the past due to reasons other than illness or allergy, to care for COVID-19 patients, or to rely on

themselves when making vaccination decision. Vaccine acceptance was more than twice previous intent among Black respondents, an increase from 30.8% to 73.8%, and across all hospital roles with all >80% vaccine acceptance.

Conclusions: The majority of HCP were vaccinated, much higher than reporting intent before vaccine was available. However, many HCP-particularly ancillary services-are still hesitant. Feasible and effective interventions to address the hesitant, including individually-tailored education strategies are needed, or vaccine can be mandated."

Disaster Med Public Health Prep: Stress and work-related burnout in frontline health care professionals during the COVID-19 pandemic (31 August 2021)

"Objective: The COVID-19 pandemic is affecting humankind in unprecedented and monumental ways. Healthcare professionals (HCPs) have had to deal with traumatic and complex situations at work. However, the current understanding of the emotional effects on HCPs and their vulnerability during the pandemic is limited. We investigated the effects of HCPs' viral epidemic-related stress, professional quality of life (ProQOL), depression, and anxiety on their health-related quality of life (HRQOL).

Methods: We recruited a convenience sample of 60 HCPs at two tertiary hospitals in provinces P and Y, Republic of Korea. We analyzed their demographics, viral epidemic-related distress, ProQOL (compassion satisfaction, burnout, and secondary traumatic stress), depression, anxiety, and HRQOL through self-reported questionnaires.

Results: Burnout had a significant direct effect on depression, anxiety, physical health, and psychological HRQOL and indirectly affected all subcategories of HRQOL. Viral epidemic-related stress had no significant direct effect on any variable, but indirectly affected all subcategories of HRQOL. Depression and anxiety were endogenous variables (mediators). Depression was a pathway that directly and significantly affected all subcategories of HRQOL. Burnout had the most significant effect on physical health and psychological HRQOL, whereas depression had the greatest effect on social relationships and environmental HRQOL.

Conclusion: Low compassion satisfaction caused burnout in HCPs, and burnout was significantly associated with depression, anxiety, and HRQOL. Furthermore, HRQOL showed a greater response when affected by indirect burnout through depression and anxiety than when directly affected by burnout."

Residents

Pediatrics: Promoting Resident Connection During and After the COVID-19 Pandemic (10 September 2021)

"Our appeal is therefore simple, whether during the coronavirus disease 2019 pandemic or afterward: develop opportunities for resident physicians to participate in art-making or viewing, be it through writing, photography, drawing, or music. Empower trainees to share their work and reflect upon it. From a practical implementation standpoint, the options are boundless."

Mental Health, Psychosocial Issues, and Wellness

News in Brief

"When COVID deaths are dismissed or stigmatized, grief is mixed with shame and anger" (NPR).

"6 tips for coping with COVID anxiety this fall and winter" (NPR).

"Zoom dysmorphia is following us into the real world: Eighteen months of using front-facing cameras has distorted our self-image – and a new study reveals that the effects aren't going away easily" (Wired).

Journal Articles

PLoS One: COVID-19 vaccines and mental distress (08 September 2021)

"Background: The COVID-19 pandemic brought about large increases in mental distress. The uptake of COVID-19 vaccines is expected to significantly reduce health risks, improve economic and social outcomes, with potential benefits to mental health.

Purpose: To examine short-term changes in mental distress following the receipt of the first dose of the COVID-19 vaccine.

Methods: Participants included 8,003 adults from the address-based sampled, nationally representative Understanding America Study (UAS), surveyed at regular intervals between March 10, 2020, and March 31, 2021 who completed at least two waves of the survey. Respondents answered questions about COVID-19 vaccine status and self-reported mental distress as measured with the four-item Patient Health Questionnaire (PHQ-4). Fixed-effects regression models were used to identify the change in PHQ-4 scores and categorical indicators of mental distress resulting from the application of the first dose of the COVID-19 vaccine.

Results: People who were vaccinated between December 2020 and March 2021 reported decreased mental distress levels in the surveys conducted after receiving the first dose. The fixed-effects estimates show an average effect of receiving the vaccine equivalent to 4% of

the standard deviation of PHQ-4 scores (p-value<0.01), a reduction in 1 percentage point (4% reduction from the baseline level) in the probability of being at least mildly depressed, and of 0.7 percentage points (15% reduction from the baseline level) in the probability of being severely depressed (p-value = 0.06).

Conclusions: Getting the first dose of COVID-19 resulted in significant improvements in mental health, beyond improvements already achieved since mental distress peaked in the spring of 2020."

JAMA Netw Open: [The Association Between School Closures and Child Mental Health During COVID-19](#) (03 September 2021)

"Question: Is there an association between school closures and child mental health outcomes, and how does it vary by key sociodemographic characteristics?

Findings: In this survey study of 2324 adults with at least 1 school-aged child, a small association between school closures and worse child mental health outcomes was observed, with older children and children from families with lower income experiencing more mental health problems associated with school closures. Children from families with lower income and those belonging to minority racial/ethnic groups were most likely to experience school closures.

Meaning: These findings suggest older and Black and Hispanic children as well as children from families with lower income who attend school remotely may experience disproportionate mental health difficulties."

Disparities and Health Equity

News in Brief

"HHS is establishing the Office of Climate Change and Health Equity (OCCHE) in response to President Joe Biden's [Executive Order Tackling the Climate Crisis at Home and Abroad](#)" ([HHS](#)).

Journal Articles

JAMA Health Forum: [Inequities in COVID-19 Vaccination Rates in the 9 Largest US Cities](#) (03 September 2021)

"This cross-sectional study evaluates neighborhood-level data in the 9 largest US cities to identify inequities in COVID-19 vaccination rates….

In the 9 largest US cities [New York, New York; Los Angeles, California; Chicago; Houston, Texas; Phoenix, Arizona; Philadelphia, Pennsylvania; San Antonio, Texas; San Diego, California; and Dallas, Texas], COVID-19 vaccination rates were disproportionately high in communities with lower burdens of this disease."

EClinicalMedicine: [Racial and ethnic disparity in clinical outcomes among patients with confirmed COVID-19 infection in a large US electronic health record database](#) (02 September 2021)

"Background: Racial and ethnic minority groups have been disproportionately affected by the US coronavirus disease 2019 (COVID-19) pandemic; however, nationwide data on COVID-19 outcomes stratified by race/ethnicity and adjusted for clinical characteristics are sparse. This study analyzed the impacts of race/ethnicity on outcomes among US patients with COVID-19.

Methods: This was a retrospective observational study of patients with a confirmed COVID-19 diagnosis in the electronic health record from 01 February 2020 through 14 September 2020. Index encounter site, hospitalization, and mortality were assessed by race/ethnicity (Hispanic, non-Hispanic Black [Black], non-Hispanic White [White], non-Hispanic Asian [Asian], or Other/unknown). Associations between racial/ethnic categories and study outcomes adjusted for patient characteristics were evaluated using logistic regression.

Findings: Among 202,908 patients with confirmed COVID-19, patients from racial/ethnic minority groups were more likely than White patients to be hospitalized on initial presentation (Hispanic: adjusted odds ratio 1·690, 95% CI 1·620-1·763; Black: 1·810, 1·743-1·880; Asian: 1·503, 1·381-1·636) and during follow-up (Hispanic: 1·700, 1·638-1·764; Black: 1·578, 1·526-1·633; Asian: 1·391, 1·288-1·501). Among hospitalized patients, adjusted mortality risk was lower for Black patients (0·881, 0·809-0·959) but higher for Asian patients (1·205, 1·000-1·452).

Interpretation: Racial/ethnic minority patients with COVID-19 had more severe disease on initial presentation than White patients. Increased mortality risk was attenuated by hospitalization among Black patients but not Asian patients, indicating that outcome disparities may be mediated by distinct factors for different groups. In addition to enacting policies to facilitate equitable access to COVID-19-related care, further analyses of disaggregated population-level COVID-19 data are needed."

JAMA Netw Open: [Changes in Newly Identified Cancer Among US Patients From Before COVID-19 Through the First Full Year of the Pandemic](#) (31 August 2021)

"This cross-sectional study updates a previous analysis of changes in rates of new cancer diagnosis among US patients during the COVID-19 pandemic….

Our results indicate a significant decline in newly identified patients with 8 common types of cancer in the first and third pandemic periods (winter months) but not in the second period (summer months)."

Risk, Transmission, and Exposure

News in Brief

"Massive randomized study is proof that surgical masks limit coronavirus spread, authors say" (WP; see also: IPA report, below).

"An unpublished COVID-19 paper alarmed this scientist—but he had to keep silent. Thijs Kuiken faced a moral dilemma after reviewing a Lancet manuscript showing the new coronavirus spread between humans" (Science).

Testing

"Why can't America fix its Covid-19 testing problems? US testing numbers have been consistently bad because there is no real strategy" (Vox).

"Army study evaluates use of dogs in COVID-19 detection" (DOD).

Special Reports and Other Resources

IPA: The Impact of Mask Distribution and Promotion on Mask Uptake and COVID-19 in Bangladesh (01 September 2021)

"A growing body of scientific evidence suggests that face masks can protect against COVID-19. There is, however, limited rigorous evidence on the extent to which mask-wearing is effective in reducing COVID-19 in a real-life situation with imperfect and inconsistent mask use. In Bangladesh, researchers and IPA partnered with Bangladeshi policymakers and a local NGO to design and evaluate various strategies to increase mask-wearing and assess the impact of community mask-wearing on SARS-CoV-2 infection rates. They found that a four-part intervention (the "NORM model") tripled mask usage (a 29- percentage-point increase), and increased physical distancing by 5 percentage points. Further, this increase in mask-wearing reduced symptomatic SARS-CoV-2 infections. When surgical masks were employed, 1 in 3 symptomatic infections were avoided for individuals 60+ years old, the age group that faces the highest risk of death following infection. This was the first large-scale randomized evaluation to demonstrate the effectiveness of masks in a real-world setting."

Journal Articles

MMWR: [SARS-CoV-2 Transmission to Masked and Unmasked Close Contacts of University Students with COVID-19 — St. Louis, Missouri, January–May 2021](#) (10 September 2021)

"What is already known about this topic? During January–May 2021, Saint Louis University implemented a modified quarantine protocol that considered mask use when determining which close contacts required quarantine among an almost entirely unvaccinated student population.

What is added by the report? Compared with only masked exposure, close contacts with any unmasked exposure had higher adjusted odds of a positive test result. Each additional exposure was associated with a 40% increase in odds of a positive test.

What are the implications for public health practice? Universal masking and fewer encounters in close proximity to persons with COVID-19 can limit the spread of SARS-CoV-2 in university settings."

MMWR: [Screening Programs for SARS-CoV-2 Infections on a University Campus — Austin, Texas, September 30–November 30, 2020](#) (03 September 2021)

"What is already known about this topic? University testing programs have permitted a safer return of students to campus by identifying persons with COVID-19 and temporarily isolating them from the campus population.

What is added by this report? Targeted screening identified 48 cases of COVID-19 during September–November 2020, 18 (38%) of which were in asymptomatic persons. This population of infected students was demographically different from those identified through other testing programs, more risk-tolerant, and less willing to participate in public health prevention activities.

What are the implications for public health practice? In addition to clinic-based diagnostic SARS-CoV-2 testing at colleges and universities, a complementary strategy of community and targeted screening programs might enhance efforts to identify and control transmission of COVID-19."

MMWR: [Epidemiologically Linked COVID-19 Outbreaks at a Youth Camp and Men's Conference — Illinois, June–July 2021](#) (03 September 2021)

"What is already known about this topic? The Illinois Department of Public Health investigated COVID-19 outbreaks at two events sponsored by the same organization: a 5-day overnight church camp for persons aged 14–18 years and a 2-day men's conference.

What is added by this report? Neither COVID-19 vaccination nor COVID-19 testing was required before either event. Among 122 primary cases, 104 (85%) were in persons who

were not fully vaccinated, and 18 (15%) were in fully vaccinated persons. Eight of 38 (21%) close contacts of the 18 fully vaccinated persons subsequently became infected with SARS-CoV-2. No vaccinated persons with COVID-19 were hospitalized.

What are the implications for public health practice? This investigation underscores the impact of secondary SARS-CoV-2 transmission during large events such as camps and conferences when COVID-19 prevention strategies, including vaccination, masking, physical distancing, and screening testing, are not implemented."

Emerg Infect Dis: Epidemiology of Coronavirus Disease Outbreak among Crewmembers on Cruise Ship, Nagasaki City, Japan, April 2020 (05 August 2021)

"In April 2020, a coronavirus disease (COVID-19) outbreak occurred on the cruise ship Costa Atlantica in Nagasaki, Japan. Our outbreak investigation included 623 multinational crewmembers onboard on April 20. Median age was 31 years; 84% were men. Each crewmember was isolated or quarantined in a single room inside the ship, and monitoring of health status was supported by a remote health monitoring system. Crewmembers with more severe illness were hospitalized. The investigation found that the outbreak started in late March and peaked in late April, resulting in 149 laboratory-confirmed and 107 probable cases of infection with severe acute respiratory syndrome coronavirus 2. Six case-patients were hospitalized for COVID-19 pneumonia, including 1 in severe condition and 2 who required oxygen administration, but no deaths occurred. Although the virus can spread rapidly on a cruise ship, we describe how prompt isolation and quarantine combined with a sensitive syndromic surveillance system can control a COVID-19 outbreak."

Seroprevalence / Serosurveillance

MMWR: Using Wastewater Surveillance Data to Support the COVID-19 Response — United States, 2020–2021 (10 September 2021)

"What is already known about this topic? Wastewater surveillance measures community infection trends. The accuracy of this surveillance approach is independent of health care–seeking behavior, health care access, or testing capacity. The National Wastewater Surveillance System (NWSS) is a 43-jurisdiction, CDC-coordinated system for SARS-CoV-2 wastewater surveillance.

What is added by this report? Wastewater surveillance data have been used to deploy clinical testing resources, investigate possible irregularities in traditional surveillance, refine health messaging, and forecast clinical resource needs.

What are the implications for public health practice? NWSS provides community-level surveillance data that complement traditional surveillance and facilitate earlier, focused

health department intervention and support in communities experiencing increasing trends in wastewater SARS-CoV-2 concentrations. Community-level wastewater surveillance data can be leveraged for rapid assessment of emerging threats and preparedness for future pandemics."

JAMA: Estimated US Infection- and Vaccine-Induced SARS-CoV-2 Seroprevalence Based on Blood Donations, July 2020-May 2021 (02 September 2021)

"Question: Based on blood donations in the US from July 2020 through May 2021, how did infection- and vaccine-induced SARS-CoV-2 seroprevalence vary over time by demographic group and by geographic region?

Findings: In this repeated cross-sectional study that included 1 443 519 blood donation specimens from a catchment area representing 74% of the US population, estimated SARS-CoV-2 seroprevalence weighted for differences between the study sample and general population increased from 3.5% in July 2020 to 20.2% for infection-induced antibodies and 83.3% for combined infection- and vaccine-induced antibodies in May 2021. Seroprevalence differed by age, race and ethnicity, and geographic region of residence, but these differences changed over the course of the study.

Meaning: Based on a sample of blood donations in the US from July 2020 through May 2021, estimated SARS-CoV-2 seroprevalence increased over time and varied by age, race and ethnicity, and geographic region."

See also: Prevalence of SARS-CoV-2 Antibodies From a National Serosurveillance of Kenyan Blood Donors, January-March 2021

Household Transmission

Clin Infect Dis: Latino Household Transmission of SARS-CoV-2 (31 August 2021)

"We assessed temporal changes in the household secondary attack rate of SARS-CoV-2 and identified risk factors for transmission in vulnerable Latino households of Baltimore, Maryland. The household SAR was 45.8%, and it appeared to increase as the alpha variant spread, highlighting the magnified risk of spread in unvaccinated populations."

JAMA Netw Open: Factors Associated With Household Transmission of SARS-CoV-2: An Updated Systematic Review and Meta-analysis (27 August 2021)

"Question: Are early estimates of household transmission of SARS-CoV-2 indicative of current household transmission?

Findings: In this updated systematic review and meta-analysis of 87 studies representing 1 249 163 household contacts from 30 countries, the estimated household secondary attack

rate was 19%. An increase in household transmission was observed over time, perhaps owing to improved diagnostic procedures and tools, longer follow-up, more contagious variants, and different study locations.

Meaning: These findings suggest that the household remains an important site of SARS-CoV-2 transmission, and recent studies have generated higher household secondary attack rate estimates compared with the earliest reports; more transmissible variants and vaccines may be associated with additional changes in the future."

Health Messaging and Misinformation

News in Brief

"When 'talk to your doctor' goes so, so wrong — Vanishingly few people have legitimate reasons to avoid COVID-19 vaccination. Some say their doctors told them not to get vaccinated anyway" (Atlantic).

Meanwhile… "Physicians who publicly spread misinformation about the COVID-19 pandemic could be sanctioned by the American Board of Emergency Medicine (ABEM), including potentially losing board certification" (Medpage; see also: ABEM statement).

Similarly, a joint statement from the American Board of Family Medicine, American Board of Internal Medicine, and American Board of Pediatrics condemns misinformation dissemination from providers, saying "unethical or unprofessional conduct may prompt their respective Board to take action that could put their certification at risk" (ABP; see also: FSMB statement from July 2021).

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"Bill Bramhall's editorial cartoon for Monday, Aug. 16, 2021, as misinformation continues to cause havoc amid the ongoing coronavirus pandemic" (Bill Bramhall/New York Daily News; used without permission).

Journal Articles

J Am Pharm Assoc: [A coordinated strategy to develop and distribute infographics addressing COVID-19 vaccine hesitancy and misinformation](#) (21 August 2021)

"Background: Visual communication strategies are becoming increasingly prevalent for conveying information to health professionals as well as to the general public. The potential of social media for rapid knowledge dissemination using infographics was recognized early in the coronavirus disease (COVID-19) pandemic by health professionals.

Objective: The purpose of this study was to describe a coalition of health professionals' approach to developing infographics about COVID-19 vaccines and the reach and engagement of those infographics when shared through social media.

Methods: Infographics were created by a core team within the coalition following a stepwise approach. Each underwent a multistep review process, readability evaluation, and translation into Spanish. Infographics were then shared through multiple social media platforms. They were grouped into 1 of 3 categories for this analysis: COVID-19 vaccine series, myth debunkers, or other.

Results: All infographics had greater outreach, impressions, and engagement on Twitter than they did on other platforms. When comparing the 3 groups, no 1 infographic type was consistently performing higher than the others.

Conclusion: Each infographic reached thousands to tens of thousands of people. We do not know whether those who viewed these infographics changed their perspective on vaccination, so we are unable to draw a conclusion about their impact on vaccine hesitancy based on this study alone."

Front Psychiatry: [Conspiratorial Thinking During COVID-19: The Roles of Paranoia, Delusion-Proneness, and Intolerance of Uncertainty](#) (18 August 2021)

"The COVID-19 global pandemic has left many feeling a sense of profound uncertainty about their world, safety, and livelihood. Sources espousing misinformation and conspiracy theories frequently offer information that can help make sense of this uncertainty. Individuals high in intolerance of uncertainty (IU) may be particularly impacted by the impoverished epistemic environment and may thus be more drawn to conspiratorial thinking (CT). In the present work, we show across 2 studies (N = 519) that COVID-19-specific CT is associated with higher levels of IU as well as delusion-proneness, and paranoia. Furthermore, delusion-proneness and paranoia explained the relationship between IU and CT and emerged as independent partial correlates of CT even when controlling for other facets of schizotypy. In contrast, anxiety did not explain the relationship between IU and CT. Overall, our findings highlight the importance of individual differences in IU, delusion-proneness and paranoia in the development of CT in the context

of the acute uncertainty of a global crisis, in which conspiracy theories are more prevalent and salient. Informational intervention designs may benefit from leveraging the body of work demonstrating the efficacy of targeting IU to incite meaningful changes in thinking."

Public Health Pract: [The health belief model: How public health can address the misinformation crisis beyond COVID-19](link) (08 June 2021)

"This paper proposes an intervention into health misinformation that relies upon the health belief model as a means to bridge the risks associated with health misinformation and the impact on individual health, beyond the current recommendations for fact checking and information literacy.

Misinformation researchers and public health practitioners and communicators can benefit using the infrastructures afforded by public health offices to mobilize the health belief model as a site for misinformation education."

Other Infectious Diseases and Public Health Threats

News in Brief

Not an infectious disease, but a major public health achievement: "One of the worst public health dangers of the past century has finally been eradicated — One hundred years after its invention, leaded gasoline for cars has at long last been phased out worldwide" ([Vox](link); see also: [UN press release](link)).

Moderna is working on a combination COVID-19 booster and flu shot ([Reuters](link)).

A case of measles has been reported in an Afghan refugee at Fort McCoy, Wisconsin ([WXOW](link)).

DRC has reported over 600 cases of monkeypox in the last 6 weeks ([ONT](link)).

"Global Fund results report reveals COVID-19 devastating impact on HIV, TB and malaria Programs" ([GF](link)).

"The death of a 12-year-old boy sparks worries of a Nipah virus outbreak in India" ([NPR](link)); "Bangladesh reports two Nipah virus cases in 2021" ([ONT](link)).

Statistics

	Total Cases	Total Deaths	Total Vaccine Doses Administered
Global	223,296,909	4,608,047	5,616,285,838
United States	40,606,600	654,632	376,270,422

JHU CSSE as of 1000 EDT 10 September 2021

Virginia	Total cases (state)	Chesapeake	Hampton	Newport News	Norfolk	Portsmouth	Suffolk	Virginia Beach
Cases	801,827	25,540	13,163	17,931	21,659	11,020	9,560	44,285
Hospitalizations	34,696	1,181	577	681	1,313	779	579	2,268
Deaths	12,036	321	198	253	292	212	203	455

VA DOH as of 1000 EDT 10 September 2021